E C O T O X

ECOTOXicology Database System

ECOTOX Code Appendix

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Appendix A. Carrier CAS Numbers

Chemical Name	CAS #
Acetate	71501
Acetic acid	64197
Acetone (2-Propanone)	67641
Acetonitrile	75058
Aerosol OT (Sodium salt)	577117
Agar	9002180
Arachis oil	8002037
Butyl dioxitol	112345
Benzene	71432
Cadmium Chloride	10108642
Cadmium Sulfate	10124364
Cod Liver Oil	8001692
Cottonseed Oil	8001294
Corn Oil	8001307
Cornstarch	9005258
Cyclosol 63	89072606
Diesel oil	68334305
1,4-Dioxane	123911
DMF, N,N-Dimethylformamide	68122
DMSO, Dimethyl Sulfoxide	67685
Emulphor	9004982
Ethanol (or Ethyl alcohol - absolute alcohol)	64175
Ether	60297
2-Ethoxyethanol	110805
Ethylene Glycol Monomethyl Ether (2-Methoxyethanol)	109864
Fish Oil	8016135
Fuel Oil	68476299
Gelatin	9000708
Gum acacia	9000015
Gum tragacanth	9000651
HCL, Hydrochloric Acid	7647010
Hexane (also, N-Hexane)	110543
HNO3, Nitric Acid (HNO3; H2SO4,R)-Purity Character (Sulphuric Acid,R)	7697372
Isopropanol (2-Propanol)	67630
Iron Sulfates	10124499
Lactose	63423
Methanol (Methyl alcohol) (CH30H)	67561

Methoxyethanol (or 2-Methoxyethanol) 109864
Methylcellulose 9004675
Methylene Chloride 75092
Methyl ethyl ketone 78933
Mineral oil 8012951
NAHCO3, Sodium Bicarbonate 144558
NAOH, Sodium Hydroxide 1310732
N,N-Dimethylformamide (or Dimethylformamide) 68122
Nitric Acid 7697372
Olive Oil 8001250
Peanut Oil 8002037
Pentane 109660
Petroleum ether 8030306
Polyethylene Glycol (2-Propanol) 25322683
Polysorbate 80 (Tween 80) 809005656
Potassium Hydroxide (KOH) 1310583
Propane (Propylene glycol) 57556
2-Propanol Isopropanol (or Isopropanol)-Isopropyl alcohol 67630
Propylene Glycol 57556
Safflower Oil 8001238
Saline 7647145
Salt 7647145
Sesame Seed Oil 8008740
Sodium Chloride (Salt, Saline)(Na Cl) 7647145
Sodium Sulfate 7757826
Soybean Oil 8001227
Starch 9005258
Sucrose 57501
Sulfuric Acid 7664939
Sunflower Oil 8001216
Tergitol NPX 9016459
Toluene (or Methylbenzene) 108883
Toxisol FLC 12738920
Trichloroacetic Acid 76039
Triethylene Glycol 112276
Trimethylene Glycol 504632
Trioactanoin 538238
Triton-X100 9002931
Tween 40 9005667
Tween 80 (Polysorbate 80) 9005656

Water 7732185
Vegetable oil 68956683
Velsicol 2307495
Xylene 1330207

Appendix B. Chemical Grade Codes

ACS	American Chemical Society Grade	MRG	Merck Reagent Grade
AG	Agricultural Grade	ME	Monsanto Electrical Grade
AN	Analar Grade	NAF*	National Formulary Grade
AL	Analysis Grade	NP	Normapur Grade
A*	Analytical Grade	NR	Not Reported
A or R	Analytical or Reagent Grade	OP	Optima
A or T	Technical or Analytical Grade	PAN	Pestanal Grade
AN or R	Analar or Reagent Grade	PST	Pesticide Grade
AR*	A.R. Grade	PRG	Pesticide Residue Grade
B	Biological Grade	PH	Pharmaceutical Grade
CT	Certified Grade	PRA*	Practical Grade
CG	Chemical Grade	PR	Production Grade
CH	Chromatographic Grade	PG*	Pure Grade
CL	Clinical Grade	PFG	Purified Grade
C	Commercial Grade	R*	Reagent Grade
C or AN	Commercial or Analar Grade	RFG	Reference Grade
DG	Distilled in Glass Grade	RE	Research Grade
EM	Eastman Grade	RE or A	Research or Analytical Grade
EL	Electrophoresis Grade	RS	Residue Grade
EX	Experimental Grade	SC	Scintillation Grade
F	Field Grade	SO	Solvent Grade
FFL	Free flowing Grade	SPC	Spectrochemical Grade
GR	GR Grade	S	Spectrophotometric Grade
GU	Guaranteed Grade	TA	Technical Acid Grade
GUR	Guaranteed Reagant Grade	T*	Technical Grade
HPLC*	High Performance Liquid Chromatography Grade	T or P	Technical or Purified Grade
		T or PU	Technical or Pure Grade
HG	Histological Grade	TIS	Tissue Culture Grade
I	Industrial Grade	ULV	ULV Grade
L	Laboratory Grade	UP	Ultrapure Grade
MK	Merck Grade	USP*	United States Pharmacopeia Grade
		UV	Ultraviolet Grade

* Code as “A” for concentration type for organic chemicals for AQUIRE

Appendix C. Chemical Formulation Codes

AE	Acid Equivalent
AI	Active Ingredient
ASG	Agricultural Suspension
ARST	Analytical Reference Standard
AQ	Aqueous Solution
AS	Aqueous Suspension
AAPS	Atomic Absorption Primary Standard
CP*	Chemically Pure
CRI	Chromatographically Impure
CRP	Chromatographically Pure
C	Commercial
CO	Concentrate
CR	Controlled Release
CRY	Crystal
DC	Detached Crystals
DG	Dispersable Granule (also known as “dry flowable”)
DP	Dispersable Powder
D	Dust
EC	Emulsifiable Concentrate
EF	Emulsifiable Formulation
ES	Emulsifiable Solution, Agent
EG	Emulsified Granular
E	Emulsion
EN	Encapsulated
FFO	Field Formulated
FCASS	Fisher Certified Atomic Absorption Standard
FK	Flake
FF	Flowable Formulation
FG	Finely Ground
FO	Formulated
GCR	Gas Chromatograph Standard
GS	Gaseous
G	Granule, Granular
GU	Guaranteed
HG	Heavy Granular
LD	Liquid
LDCO	Liquid concentrate
MO	Miscible Oil
N	Nanograde
ND	Neutralized, Desensitized
NF	Nonionized Form
NR	Not Reported
OD	Oil Dispersion
OS	Oil Soluble
ODA	Organic Dispersal Agent
PAR	Particulate
PEL	Pellet
PO	Powder
PRE	Prepared in Lab
PS *	Primary Standard
PA	Pro Analsi Quality
PU	Pure, Purissium or Puris
PF *	Purified
RC	Recrystallized
RST*	Reference Standard
RF	Registered Formulation
SRF	Slow Release Formulation
S	Solution
SO	Soluble Concentrate
SP	Soluble Powder
SPCO	Spray Concentrate
SPL	Spray Liquid
SPO	Spray Powder
ST	Standard
STD	Standard Solution for AA
UD	Unneutralized, Desensitized
WMC	Water Miscible Concentrate
WS	Water Soluble
WSC	Water Soluble Concentrate
WP	Wettable Powder
WHO	World Health Organization
W/W	Weight per weight

* Code as “A” for concentration type for organic chemicals for AQUIRE

Appendix D. Radiolabel Isotope Codes

Ag-110	Silver
Am-241	Americium
As-74	Arsenic
As-76	Arsenic
Be-7	Beryllium
C-12	Carbon
C-13	Carbon
C-14	Carbon
Cd-109	Cadmium
Cd-115	Cadmium
Ca-45	Calcium
Cl-36	Chlorine
Cm-244	Curium
Co-60	Cobalt
Co-64	Cobalt
Co-57	Cobalt
Cr-51	Chromium
Cs-137	Cesium
Cs-134	Cesium
Cu-64	Copper
Cu-63	Copper
Cu-65	Copper
Eu-152	Europium
F-18	Fluorine
I-131	Iodine
Fe-59	Iron
H-3	Hydrogen (Tritium)
Hg-197	Mercury
Hg-203	Mercury
I-125	Iodine
I-131	Iodine
Mn-54	Manganese
N-15	Nitrogen
Ni-59	Nickel
Ni-63	Nickel
Np-235	Neptunium
NR	Not Reported
P-32	Phosphorus
Pb-210	Lead
Pb-203	Lead
Po-208	Polonium
Po-210	Polonium
Pu-239	Plutonium
Pu-237	Plutonium
Ra-226	Radium
Ru-106	Ruthenium
S-35	Sulfur
Sb-125	Antimony
Se-75	Selenium
Sn-113	Tin
Sr-90	Strontium
Sr-85	Strontium
Tc-95	Techninium
Tc-99	Technicium
Te-128	Tellurium
Tl-115	Thallium
Th-232	Thorium
Th 238	Thorium
U-238	Uranium
U-232	Uranium
U-235	Uranium
V-48	Vanadium
V-49	Vanadium
Yes	Unknown radiolabel
Zn-65	Zinc

Appendix E. Organism Source Codes

Code	Definition
CBC	**C**aptive **b**reeding **c**olony
COM	**Com**mercial source
DOM	**Dom**estic strain
GAM	**Gam**e farm strain
GOV	**Gov**ernment agency source
LAB	**Lab**oratory strain
MLT	**Mul**tiple Sources
NR	**N**ot **r**eported
WLD	**Wild** strain

Appendix F. Lifestage Codes (at beginning of exposure)

I. Organism lifestage codes

Code	Definition
AD	Adult
CC	Cocoon
EG	Egg
EM	Embryo
IM	Immature
IN	Instar
JV	Juvenile; fledgling, hatchling, weanling
LV	Larvae
MA	Mature
MU	Multiple
NR	Not reported, unknown
PU	Pupa
SA	Subadult
SI	Sexually immature
SM	Sexually mature
SP	Sperm
VI	Virgin
YO	Young

II. Plant lifestage codes

Code	Definition
BS	Bud blast stage
FB	Mature, full-bloom stage (fruit trees)
FG	Female gametophyte
FO	Flower opening
GS	Germinated seed
IB	Incipient bud
MD	Mature dormant
MG	Male gametophyte
MU	Multiple stages
MT	Mature, no specified stage
PB	Mature, post-bloom stage (fruit trees)
PH	Mature, pit-hardening stage (fruit trees)
RP	Mature reproductive
RST	Rootstock
SE	Scape elongation
SD	Seed
SG	Mature, side-green stage (fruit trees)
SL	Seedling
SN	Sapling
TC	Tissue culture callus
TU	Tuber
VG	Mature vegetative

Appendix G. Soil Type Codes

Standard Artificial Soils:

OECD 1984	Organization for Economic Cooperation and Development 1984
OECD 1993	Organization for Economic Cooperation and Development 1993
EEC	Council of European Communities
ISO 1994	International Standard Organization 1994

Standard Artificial Soil Characteristics		
Soil Type	Organic Matter	pH
OECD 1984	10 % peat	6.0
OECD 1993	10 % peat	6.0
EEC	10 % peat	6.0
ISO 1994	10 % peat	6.0

Appendix H. Test Location Codes

Code	Definition
FieldA	**Field, A**rtificial - a simulated or artificial field study is conducted in "an artificially bounded system that is a simplification of a specific ecosystem", e.g. aviaries, pens, enclosures, outdoor pots
FieldN	**Field, N**atural - a natural field study is one "in which both the test system [...] and exposure to the stressor are "naturally" derived"; e.g. sprayed agricultural field or orchard plots, field surveys.
FieldU	**Field, U**nable to determine whether natural or artificial setting
Lab	**Lab**oratory indoor setting, including environmental chamber, greenhouse, lath house, garden frame or indoor pots
NR	**N**ot **R**eported; unable to determine whether laboratory or field

Appendix I. Valid Duration Units

Code	Definition
s	**s**econd
mi	**mi**nute
h	**h**our
d	**d**ay
wk	**w**eek
mo	**mo**nth
yr	**y**ea**r**
lf	lifetime; no associated numeric value
NR	time information **n**ot **r**eported
alv	**al**e**v**in
abs	until **abs**cission
ant	until **ant**hesis
b0.25	**0.25 b**loom stage
blm	**bl**oo**m** stage
bs	**b**ud blast **s**tage
bt	to **b**oot s**t**age
cfs	to **c**ommercial **f**lower **s**tage
clv	**cl**ea**v**age
dae	**d**ays **p**ost-**e**mergence
dph	**d**ays **p**ost **h**atch
dphv	**d**ays **p**ost **h**ar**v**est
ea	to **ea**ring
eb	**e**arly **b**loom stage

Code	Definition
eslk	to **e**arly **s**i**lk** stage
el	nth **e**gg **l**aid
em	to **em**ergence
eso	**e**nd of **s**h**o**oting stage
ey	**ey**ed stage (time to eyed stage of fish eggs)
f5	**5**0% **f**lowering
fb	**f**ull **b**loom stage
frt	to fertilization
fi	**f**lower **i**nitiation
fl	**fl**ower stage
fr	to **fr**uit stage
fry	**fry**
fs	**f**lowering **s**tage
ge	**ge**neration
gm	to **g**er**m**ination
gs	**g**rowing **s**eason
hpf	**h**ours **p**ost **f**ertilization
hv	**h**ar**v**est
ht	until **h**a**t**ch
i2	**i**ntermolt to **2**nd molt
it	**i**n**t**ermolt to molt
kh	**k**nee-**h**igh stage
ls4	**4**-6 **l**eaf **s**tage
ls6	**6 l**eaf **s**tage
ls9	**9**-10 **l**eaf **s**tage

Code	Definition
ma	to **ma**turity
myp	**My**sis to **p**ost-larvae
pan	**pan**icling stage
pd	1st **p**o**d** set
pm	**p**ost **m**olt
pr	**pr**iming (The harvesting of ripened tobacco leaves)
pro	**pro**pagation stage
rc	**r**eady for **c**onsumption
slk	to **s**i**lk** stage
so	**s**h**o**oting stage
stg	stage
swm	**sw**i**m**-up
tr	1st **tr**ifoliate leaf
ts	time to **t**a**s**sle
vg	**v**e**g**etative stage
zm	**z**oeae-**m**egalop
zmy	**z**oeae to **my**sis
-n	negative values represent pretreatment times
-x	pretreatment time unknown
/	NOT TO BE USED AFTER 10/15/99, USE QUALITATIVE CODES (ABOVE) INSTEAD: used when the duration is qualitative rather than quantitative; information is recorded as text in the Remarks (eg., 12th egg after hatch but not end of study)

Appendix J. Exposure Type Codes

Code	Definition
D see Appendix J.1	**D**iet - exposure through consumption; includes diet and/or water intake; this code will be automatically assigned if one of the diet categories from Appendix J.1 is used
I see Appendix J.2	**I**njection -insertion of the toxicant into the skin, vessels, muscle, subcutaneous tissue, or any body cavity; this code will be automatically assigned if one of the injection categories from Appendix J.2 is used
M see Appendix J.3	**M**ultiple-exposure to the toxicant through two or more different routes.
N see Appendix J.4	I**n**halation - exposure to the toxicant through breathing; this code will be automatically assigned if one of the injection categories from Appendix J.3 is used
NR	Exposure type is **N**ot **R**eported
T see Appendix J.5	**T**opical - exposure includes dermal, eggshell, immersion or soaking; this code will be automatically assigned if one of the topical categories from Appendix J.4 is used
V see Appendix J.6	En**v**ironmental - exposure includes field in situ and specific application types as well as incidental exposures; this code will be automatically assigned if one of the environmental categories from Appendix J.5 is us

Appendix J.1 Diet (D) Exposure Codes

Code	Definition
DT	diet, unspecified
FD	chemical incorporated into the food
DR	chemical incorporated into the water
CH	choice of treated or untreated food or water
GV	gavage
OR	oral via capsule

Appendix J.2 Injection (I) Codes

Code	Definition
IJ	injection, unspecified
IG	intragastrical (digestive system)
IM	intramuscular
IP	intraperitoneal
IL	intra placental
IR	intraprostomial
IS	intrasegmentally (insects)
IE	intratesticular
IT	intratracheal
IV	intravenous
SC	subcutaneous
YK	yolk

Appendix J.3 Multiple (M) Application Codes

Code	Definition
MU	multiple routes between application groups (e.g. dermal and inhalation)

Appendix J.4 Inhalation (N) Application Codes

Code	**Definition**
IH	inhalation

Appendix J.5 Topical (T) Application Codes

Code	**Definition**
DM	dermal
MM	immersion
OC	ocular
PC	percutaneous
SA	surface area dose
SH	eggshell
TP	topical, general

Appendix J.6 Environmental (V) Exposure Codes

Code	**Definition**
AE	aerial (unknown type)
AG	aerial-granular
AS	aerial spray application
CM	culture medium application
DA	direct application

Code	Definition
DU	dusted
DW	dropwise application
EN	environmental, unspecified
FS	foliar spray
FU	fumigation
GG	ground granular
GM	growth medium application
GS	ground spray
HP	hydroponic solution application
HS	hand spray
IN	in situ
MI	misted
MT	multiple routes within environmental exposures, eg. Aerial spray and soil slurry to the same plots.
PR	present in soil
PT	painted
PU	pump
SO	dipped or soaked
SP	spray
SS	soil slurry
WA	watered

Appendix J.7 AQUIRE ONLY Exposure Type Codes

AQUIRE Lab Exposure Types (AP TYPE)

Code	Definition
C	Topical Exposure
D	Diet or Oral exposure (includes simultaneous diet and water exposure)
F	Flow-through
I	Injection
L	Leaching (used for leachate and sediment exposures, if water conc reported)
P	Pulse (intermittent or fluctuating dosing)
R	Renewal
S	Static (recirculating exposures are noted in Exp Design; algae tests where the time is <= 24 hr, static may be assumed, and coded as such by the reviewer

AQUIRE Field Exposure Types

Code	Definition
B	Tidal
D	Diet
E	Lentic (static water system without measureable flow rate, e.g. ponds, lakes, troughs, irrigation ditches)
I	Injection
O	Lotic (flowing water system, e.g. streams)

Appendix K. Application Frequency Codes

Code	Definition
ADL	**Ad l**ibitum; without limit or restraint
CON	**Con**tinual; non-pulsed
DLY	**D**ai**ly**; dosing regime not specified
EOD	**E**very **o**ther **d**ay
E X D	**E**very **X d**ays
E X H	**E**very **X h**ours
E X WK	**E**very **X w**eeks
G per D	**G**rams **per d**ay
IN	**in** situ
RES	**Res**tricted
STG	**St**a**g**e
WKY	**W**ee**k**l**y**
X	Dosed **x** time(s) per study period; e.g. 1 time = 1X
X per FI	**X** times **per f**lower **i**nitiation
X per h	**X** times **per h**our
X per 2d	**X** times **per 2 d**ays
X per 3d	**X** times **per 3 d**ays
X per 4d	**X** times **per 4 d**ays
X per 12d	**X** times **per 12 d**ays
X per 14d	**X** times **per 14 d**ays
X per d	**X** times **per d**ay
X per wk	**X** times **per wee**k

X per 2 wk	**X** times **p**er **2** **w**ee**k**s
X per mo	**X** times **p**er **mo**nth
X per yr	**X** times **p**er **y**ea**r**
X, 1X/D	**X** times, **1 time** per **d**ay
X, 1X/Y	**X** times, **1 time** per **y**ear
NR	**N**ot **R**eported

Appendix L. Exposure Media Codes

Code	Definition
AGR	Agar
AQU	Aqueous
ART	Artificial soil (This includes soils that are created from individual soil components. For example, if clay, sand and organic matter are combined, as in OECD soils, these soils are coded as artificial.)
CUL	Culture Medium
FLT	Filter paper
HUM	Humus
HYP	Hydroponic
LIT	Litter
MAN	Manure
MIN	Mineral soil
MIX	Media Mixture (with comment)
NAT	Natural soil (This includes natural soils that are amended with nutrients.)
NONE	No substrate
NR	Not reported
OTH/	Other (with comment) Use this code when odd combinations of media are used and remark in Soil Information comments, i.e. 50/50 mixture of farina and peat
POP	Plaster of Paris
SLG	Sludge
UKS	Unspecified soil type

Appendix M. Control Type and Dose ID Codes

Code	Definition
B	**B**aseline or background control: parameters of actual or representative test species measured before and after administration of test chemical, though not as part of the same test scenario. **Note:** pretreatment values, collected during the same test scenario as the observed responses, are recorded as exposure concentrations with a negative exposure duration; not as baseline control parameters.
C	**C**oncurrent control: controls are run simultaneously with the exposure, e.g. in the laboratory where a chemical free test chamber is used or in field studies where the control data are obtained upstream from the exposure data; also includes field tests where the controls are run in a separate system, ie. pond A and pond B or field A and field B
D	Exposure **D**ose level identifier
E	**E**ndpoint link identifier
H	**H**istorical control: applicable to natural field system testing, data collected prior to exposure often during an independent long-term survey of the area; see also **B - B**aseline
K	Data for control is presented but without accompanying methodology to identify procedures used
M	**M**ultiple controls were reported, e.g. historic and concurrent
NR	**N**ot **r**eported; there is no information about presence or absence of controls in the publication
O	The '**O**' code should be used when a control is run in a different system (e.g. defined by different dilution water or soil properties) than the exposure treatments; e.g., control from pond A and effect information from pond B. See also **C** for concurrent controls. This also includes laboratory studies where different solvents are used for control versus treatment (e.g. Water was used as a solvent for test compound, controls were injected with saline, or a blood sample from an unexposed female used for a control for an exposed male).

P	**P**ositive controls were used
V	Carrier or sol**v**ent; organisms exposed to carrier or solvent as the only control
Z	No controls were used in the study

Appendix N. Exposure Dose and Observation/Response Value Units

acts/3 mi	acts per 3 minutes
ad	adults
ad/jv	adults per juvenile
AI	active ingredient; followed by the unit, eg AI kg/ha
ai g/m2	grams active ingredients per square meter
ai g/100m2	grams active ingredient per 100 square meters
ai l/ha	active ingredient liters per hectare
ai mg/kg	milligrams active ingredient per kilogram
ai mg/kg org	milligrams active ingredient per kilogram organism
ai mg/L	milligrams active ingredient per liter
ai mg/ml	milligrams active ingredient per milliliter
ai ppm	parts per million active ingredient
ai ml/100m2	milliliters active ingredient per 100 square meters
ai ug/cm2	micrograms active ingredient per square centimeter
ai ug/g soil	micrograms active ingredient per gram soil
amend:unamend	ratio of amended to unamended treatments
B'	Chromatid break
B''	Isochromatid break
b/ml	billions per milliliter
beats/mi	beats per minute
beats*ml/mi2	beats * milliliter per square minutes
bees/d	bees per day
Bq	becquerels
Bq/g	becquerels per gram
Bq/L	becquerels per liter
Bq/kg	becquerels per kilogram
Bq/mg	becquerels per milligram
Bq/ml	becquerels per milliliter
Bq/org	becquerels per organism
bits	bits
bt/mi	beats per minute
BU	Bessey Units
burrows	burrows
C	Centigrade, degrees
cal/d	calories per day
castings	earthworm castings
casts/eu	casts per experimental unit
casts/m2/d	casts per square meter per day
casts/pl	casts per plot
cc	cocoons
cc/ad	cocoons per adult
cc/10 ad	cocoons per 10 adults
cc/eu	cocoons per experimental unit
cc/cntr	cocoons per container
cc/org	cocoons per organism
cc/org/8wk	cocoons per organism per 8 weeks
cc/org/wk	cocoons per organism per week
cc/sad	cocoons per surviving adult
cc/unit	cocoons per unit
cells	cells
cells/100 clm	cells per 100 coelomocytes
cell/mi x10x3	cells per minute x10x3
cells/ml	cells per milliliter
cell/mm3	cells per cubic millimeter
cellx10x2/ul	cells x10x2 per microliter
cell/8 srtl cel	cells per 8 Sertoli cells
cfu/mg	colony forming units per milligram
CHLA:CHLB	ratio of chlorophyll a to chlorophyll b
Ci/L	curies per liter
Ci/mol	curies per mole
Ci/mmol	Curies per millimole
clusters	clusters
clutches	clutches
cm	centimeter
cm/g soil	centimeters per gram soil
cm/cm3	centimeters per cubic centimeter
cm2	centimeters squared
cm2/kg	centimeters squared per kilogram
cm2/org	centimeters squared per organism
cm2/100bees	centimeters squared per 100

	bees
cm3	cubic centimeters
cm3/eu	cubic centimeters per experimental unit
cm/wk	centimeters per week
cmol/kg	centimoles of charges per kilogram
cpm	counts per minute
cpm/cc	counts per minute per coccoon
cpm/L	counts per minute per liter
cpm/mg	counts per minute per milligram
cpm/ml	counts per minute per millimeter
cpm/org	counts per minute per organism
cwt/acre	hundredweights per acre
d	day
DB/mg pro	lipid aliphatic double bounds per milligram protein
dead:live	ratio of dead to live organisms
degree	degree
dm2	decimeters squared
dpm	disintegrations per minute
dpm/EU	disintegrations per minute per experimental unit
dpm/g	disintegrations per minute per gram of tissue
dpm/800g soil	disintegrations per minute per 800 grams of soil
dpm/mg	disintegrations per minute per milligram
dpm/ml	disintegrations per minute per milliliter
dpm/n	disintegrations per minute per N
dS/m	deciSiemens per meter
e/100hd	eggs per 100 hen days
e/hd	eggs per hen day
e/org	eggs per organism
e/org/d	eggs per organism per day
e/org/wk	eggs per organism per week
ea/eu	ears per experimental unit
eggs	egg(s)
eggs/100 ad	eggs per 100 adults
eggs/org	eggs per organism
egg/org/wk	eggs per organism per week
eggs/pair	eggs per pair
em/FM	embryos per female
enz act	enzyme activity or enzyme activity unit
eq/l	equivalents per liter
EU/g	enzyme unit (amount of enzyme needed to catalyze)/g
FD:Gain	ratio of weight of food consumed to weight gained
FER	feed efficiency ratio
fl	femtoliters
FT:PLC	fetus to placenta ratio
fet	fetuses
fetuses/litter	fetuses per litter
final:initial	ratio of initial parameter to final parameter
fledge/pair	fledglings per pair or young fledged per pair
fm	females
fr	frames (bees)
G'	Chromatid gap
G"	Isochromatid gap
g	grams
g%	gram percent
g/0.25 acre	grams per 0.25 acres
g/0.5 m2	grams per 0.5 meters squared
g/100l	grams per 100 liters
g/100g	grams per 100 grams
g/100g BW	grams per 100 grams body weight
g/100g BW/d	grams per 100 grams body weight per day
g/100g org	grams per 100 grams organism
g/100kg org	grams per 100 kilograms organism
g/d/100kg org	grams per day per 100 kilograms organism
g/100 le	grams per 100 leaves
g/100ml	grams per 100 milliliters
g/100 sd	grams per 100 seeds
g/100 stl	grams per 100 stolons
g/1000g	grams per 1000 grams
g/1000gr	grams per 1000 grains
g/13.125 ft2	grams per 13.125 square

	feet
g/2500cm2	grams per 2500 centimeters squared
g/400m	grams per 400 meters
g/5 kg soil	grams per 5 kilograms soil
g/5 m2	grams per 5 meters squared
g/acre	grams per acre
g/bee	grams per bee
g/cc	grams per cocoon
g/cm2	grams per square centimeter
g/ctnr	grams per experimental container
g/d	grams per day
g/dl	grams per deciliter
g/eu	grams per experimental unit
g/fed	grams per feddan (1 feddan = 1.038 acres)
g/fish	grams per fish
g/fruit	grams per fruit
g/ft2	grams per square foot
g/g bdwt	grams per gram body weight
g/g dry humus	grams per gram dry humus
g/h	grams per hour
g H2O/dm2/h	grams H2O per squared decameter per hour
g/ha	grams per hectare
g/kg	grams per kilogram
g/kg/d	grams per kilogram per day
g/kg feed	grams per kilogram of feed
g/kg soil	grams per kilogram soil
g/1.2 kg soil	grams per 1.2 kilogram soil
g/1.4 kg soil	grams per 1.4 kilogram soil
g/1.6 kg soil	grams per 1.6 kilogram soil
g/1.8 kg soil	grams per 1.8 kilogram soil
g/L	grams per liter
g/LE	grams per leaf
g/m2	grams per square meter
g/m3	grams per cubic meter
g/org	grams per organism
g/org/d	grams per organism per day
g/org/eu	grams per organism per experimental unit
g/org/wk	grams per organism per week
g/quadrant	grams per quadrant
g/sample	grams per sample
g/shell	grams per shell
g/ug	grams per microgram
g/wk	grams per week
Gain:FD	ratio of weight gained to weight of food consumed
gal/acre	gallons per acre
gamma/day	gamma/day (Von Bertalanffy growth)
gamma/g TI	gamma counts per gram tissue
grain/panicle	grains per panicle
h	hour
H'	Shannon-Weiner Diversity index
hatchability	hatchability
hsk:gr	ratio plant husk to grain
in	inches
in2	inches squared
inclusion	internuclear inclusion body
IU	International Units (One IU is the amount of enzyme consuming or forming 1 umol substrate or 1 umol product per minute under standard conditions.)
IU/l	International Units per liter
IU/mg	International Units per milligram
IU/mg Hb	International units per milligram hemoglobin
IU/orgwt	International Units per organ weight
J/beat	Joules per beat
J/d	Joules per day
jv	juveniles
jv/ad	juveniles per adult
jv/cc	juveniles per cocoon
jv/cntr	juveniles per container
jv/eu	juveniles per experimental unit
jv/fm	juveniles per female
jv/ftcc	juveniles per fertile cocoon
jv/lit	juveniles per litter
jv/mated fm	juvenile per mated female
jv/org/wk	juveniles per organisms per week
jv/org	juveniles per organism
kBq	kilobecquerels
kBq/L	kilobecquerels per liter
kBq/dm3	kilobecquerels per cubic

	decimeter
kBq/eu	kilbecquerels per experimental unit
kBq/ml	kilbecquerels per milliliter
K/ml	karmen units per milliliter
kcal	kilocalories
kcal/d	kilocalories per day
kg	kilograms
kg/0.5 m2	kilograms per 0.5 square meters
kg/11 m	kilograms per 11 meters
kg/d	kilograms per day
kg/eu	kilograms per experimental unit
kg/fed	kilograms per feddan (1 feddan = 1.038 acres)
kg/ha	kilograms per hectare
kg/L	kilograms per liter
kg/mi2/mo	kilograms per square mile per month
kg/mu	kilograms per mu
kg/org	kilograms per organism
KA/100ml	king/armstrong units per 100 milliliters
Kunit/ml	k unit per milliliter
L	liters
L/ha	liters per hectare
lb	pounds
lb/11 gal/acre	pound per 11 gallons per acre
lb/acre	pounds per acre
lb/cwt sd	pounds per hundred weight seed
lb/d	pounds per day
lb/eu	pounds per experimental unit
lb/ft2	pounds per square foot
lb/gal	pounds per gallon
lb/org/d	pounds per organism per day
lb/plot	pounds per plot
lit	litters
ln(Wf/Wi)	natural log(mean survivor weight/mean initial weight)
log2	log squared
log2 titers	log2 titers
log 10 ug/g org	log 10 micrograms per gram organism
maturity index	maturity index
m3	cubic meters
mBq	millibecquerels
mBq/ml	millibecquerels per milliliter
mCi	milliCuries
mCi mg	milliCuries milligram
mCi/mg	milliCuries per milligram
mCi/ml	millicuries per milliliter
mCi/mmol	milliCuries per millimoles
mg CO2/dm2/h	milligrams carbon dioxide per squared decameter per hour
metric t/ha	metric tons per hectare
mM	milliMolar (millimoles per liter)
meq	milliequivalents
meq/g	milliequivalents per gram
meq/L	milliequivalents per liter
meq/100 g	milliequivalents per 100 grams
mg	milligrams
mg$^{1/3}$	milligrams to 1/3 power
mg %	milligrams percent
mg C/g OM	milligrams carbon per gram organic matter
mg CO2/hr/g ndl	milligrams carbon dioxide per hour per gram of needles
mg NH3/ g org	milligrams ammonia per gram of organism
mg NH3/g org/h	milligrams ammonia per gram of organism per hour
mg O2/g org	milligrams oxygen per gram of organism
mg O2/g org/h	milligrams oxygen per gram of organism per hour
mg pro/g	milligrams protein per gram
mg UREA/g org	milligrams urea per gram of organism
mg urea/g org/h	milligrams urea per gram of organism per hour
mg/%	milligrams per percent
mg/0/d	milligrams per organism per day
mg/10 g bdwt	milligrams per 10 grams body weight
mg/100g	milligrams per 100 grams
mg/100g org	milligrams per 100 grams organism
mg/100g bw	milligrams per 100 grams body weight
mg/100kg org	milligrams per 100 kilograms

	of organism
mg/100 lbs	milligrams per 100 pounds
mg/100lb/d	milligrams per 100 pounds per day
mg/100ml	milligrams per 100 milliliters
mg/10g	milligrams per 10 grams
mg/10g org	milligrams per 10 grams organism
mg/24h	milligrams per 24 hours
mg/3 kg	milligrams per 3 kilograms
mg/454g	milligrams per 454 grams
mg/70g	milligrams per 70 grams
mg/bee	milligrams per bee
mg/cc	milligrams per cocoon
mg/cntr	milligrams per container
mg/cm2	milligrams per square centimeter
mg/d	milligrams per day
mg/d/100 mg org	milligrams per day per 100 grams organisms
mg/d/100 lbs	milligrams per day per 100 pounds
mg/dl	milligrams per deciliter
mg/dm3	milligrams per cubed decimeter
mg/dose	milligrams per dose
mg/eu	milligrams per experimental unit
mg/fish	milligrams per fish
mg/g	milligrams per gram
mg/g bdwt	milligrams per gram body weight
mg/g/ clay	milligrams per gram clay
mg/g fluid	milligrams per gram fluid
mg/g humus	milligrams per gram humus
mg/g N	milligrams per gram nitrogen
mg/g org	milligrams per gram of organism
mg/g pod	milligrams per gram of pod
mg/g soil	milligrams per gram of soil
mg/g/d	milligrams per gram per day
mg/g Tl	milligrams per gram tissue
mg/h	milligrams per hour
mg/ha	milligrams per hectare
mg/in2/d	milligrams per square inch per day
mg/jv	milligrams per juvenile
mg/kg	milligrams per kilogram
mg/kg bdwt	milligrams per killogram body weight
mg/kg bdwt/d	milligrams per killogram body weight per day
mg/kg d soil	milligrams per kilograms dry soil
mg/kg dry wt	milligrams per kilogram dry weight
mg/kg fd	milligrams per killogram food
mg/kg litter	milligrams per kilogram litter
mg/kg media	milligrams per kilogram media
mg/kg org	milligrams per kilogram organism
mg/kg soil	milligrams per kilogram soil
mg/kg d soil	milligrams per kilogram dry soil
mg/kg/d	milligrams per kilogram per day
mg/kg/fish	milligrams per kilogram per fish
mg/kg/L	milligrams per kilogram per liter
mg/kg org/d	milligrams per kilogram organism per day
mg/kg/wk	milligrams per kilogram per week
mg/kg wt	milligrams per kilogram weight
mg/kg wt/d	milligrams per kilogram weight per day
mg/l	milligrams per liter
mg/L/d	milligram per liter per day
mg/L media	milligrams per liter media
mg/m3	milligrams per cubic meter
mg/mg node	milligrams per milligram nodules
mg/ml	milligrams per milliliter
mg/org	milligrams per organism
mg/org/d	milligrams per organism per day
mg/orwt	milligrams per organ weight
mg/wk	milligrams per week
mg CO2/m2/sec	milligrams carbon dioxide per squared meter per second
mg p/g	milligrams protein per gram

mi	minute
mi/d	minutes per day
micronaires	micronaires
ml	milliliters
ml/100g	milliliters per 100 grams
ml/body wt	milliliters per body weight
ml/cntr	milliters per container
ml/d	milliters per day
ml/eu	milliters per experimental unit
ml/h	milliliters per hour
ml/injection	milliters per injection
ml/kg	milliliters per kilogram
ml/kg org/d	milliliters per kilogram organism per day
ml/mi/kg	milliliters per minute per kilogram
ml/org/d	milliliters per organism per day
mlcl/actin mlcl	molecules per actin molecule
ML:FM	ratio of males to females
mm	millimeters
mmHG	millimeters mercury
mmHG/s	millimeters mercury per second
mm/org	millimeters per organism
mM/g	millimolar per gram
mM/kg bdwt	millimoles per kilogram body weight
mM/L	millimoles per liter
mm2	square millimeters
mm2/org/d	square millimeters per organism per day
mm3	cubic millimeters
mm3/100g d soil	cubic millimeters per 100 grams dry soil
mm3/L	cubic millimeters per liter
mmol	millimoles
mmol/g	millimoles per gram
mmol/100 g	millimoles per 100 grams
mmol/g food	millimoles per gram food
mmol/kg	millimoles per kilogram
mmol/kg soil	millimoles per kilogram soil
mmol/L	millimoles per liter
mmol/m2/s	millimoles per square meter per second
mmol/m3	millimoles per cubic meter
mmol NO2/kg	millimoles nitrogen dioxide per kilogram
mmol H2O/m2/s	millimoles water per square meter per second
mo	month
mol	moles
mol/L	moles per liter
mol/g	moles per gram
mol/g soil	moles per gram soil
mol/m3	moles per cubic meter
mol/org	moles per organism
molal	molality
M	molar
morph/org	ectomycorrhizal morphotypes per organism
mOsm	milliosmoles
mosmols/l	mosmoles (conc osmotic particles in solution) per liter
mp/mg pro/15mi	microsomal proteins/milligram protein per 15 minutes
mu	milliunits
mU/g	milliUnits per gram organism
mu/mg	milliunit per milligram
mu/mi/ml	milliunit per minute per milliliter
mu/ml	milliunit per milliliter
mU/24 h	milliunit per 24 hours
mW	milliwatts
N	normal
NA	not applicable
nCi	nanoCuries
nCi/g org	nanoCuries per gram organism
nCi/L	nanoCuries per liter
ng	nanograms
ng ATP/g d soil	nanograms ATP per grams dry soil
ng/cm	nanograms per centimeter
ng/cm2	nanograms per square centimeter
ng/d	nanograms per day
ng/dl	nanograms per deciliter
ng/fish	nanograms per fish
ng/g	nanograms per gram
ng/g/d	nanograms per gram per day
ng/g diet	nanograms per gram diet
ng/kg	nanograms per kilogram

ng/L	nanograms per liter
ng/mg	nanograms per milligram
ng/mg/mi	nanograms per milligram per minute
ng/mg pro	nanograms per milligram protein
ng/min	nanograms per minute
ng/mi/org	nanograms per minute per organism
ng/ml	nanograms per milliliter
ng/ml/mi	nanograms per milliliter per minute
ng/mm/day	nanograms per millimeter per day
ng/org	nanograms per organism
ng/orwt	nanograms per organ weight
ng/ul	nanograms per microliter
nkat/mg pro	nanokatals per milligrams protein
nM	nanomolar (nanomoles per liter)
nM/L	nanomolar per liter
nM/g	nanomolar per gram
nmol	nanomoles
nmol ATP/g soil	nanomoles adenosine triphosphate per gram of soil
nmol mdhyde/g	nanomoles malonaldehyde per gram
nmol/g	nanomoles per gram
nmol/g pro	nanomoles per gram protein
nmol/g pro/mi	nanomoles per gram per protein per minute
nmol/g ro/4 h	nanomoles per gram root per 4 hours
nmol/g/30mi	nanomoles per gram per 30 minutes
nmol/g/h	nanomoles per gram per hour
nmol/g humus	nanomoles per gram per humus
nmol/g soil	nanomoles per gram soil
nmol/g TI	nanomoles per gram tissue
nmol/h/mg pro	nanomoles per hour per milligram protein
nmol/kg	nanomoles per kilogram
nmol/kg/m	nanomoles per kilogram per minute
nmol/l	nanomoles per liter
nmol MDA/mg pro	nanomoles malonaldehyde per milligram protein
nmol/mg	nanomoles per milligram
nmol/ml	nanomoles per milliliter
nmol/mg pro	nanomoles per milligram protein
nmol/mg pro/mi	nanomoles per milligram protein per minute
nmol/mg/20mi	nanomoles per milligram per 20 minutes
nmol/mg/mi	nanomoles per milligram per minute
nmol/mgpro/30mi	nanomoles per milligram protein per 30 minutes
nmol/mi/g	nanomoles per minute per gram
nmol/mi/mg pro	nanomoles per minute per milligram protein
nmol/mi/ml	nanomoles per minute per milliliter
nmol/mlpro/30mi	nanomoles per milliliter protein per 30 minutes
nmol/nm p450/mi	nanomoles per nanomole cytochrome P450 per minute
nmol/org/0.5 h	nanomoles per organism per 0.5 hours
nmol/org/h	nanomoles per organism per hour
no	number
no >15cm	number that are greater than 15 centimeters
no/1 mi	number per 1 minute
no/5 mi	number per 5 minutes
no/cell	number per cell
no/cm	number per centimeter
no/d	number per day
no/eu	number per experimental unit
no follicles	number of follicles
no/g	number per gram
no/g soil	number per gram soil
no/ha	number per hectare
no/litter	number of organisms per litter
no/m2	number per square meter
no/org	number per organism
no/panicle	number per panicle
no/plot	number per plot
no/preg FM	number per pregnant female
no/so	number per shoot
no/1000 RBCE	number per 1000 red blood

	cells
no sites	number of sites
NR	not reported
OD	optical density
OD/g pro	units of optical density change per gram protein
OD/mg pro	optical density per milligram protein
OD/WGHT	optical density per unit weight
ODx10x3	optical density x10x3
open bol/org	open bolls per organism
org	organisms
org/10 m	organisms per 10 meters
org/100g soil	organisms per 100g soil
org/0.25ft2	organisms per 0.25 square feet
org/0.25m2	organisms per 0.25 square meters
org/0.3m	organisms per 0.3 meters
org/50cm2	organisms per 50 square centimeters
org/60 leaves	organisms per 60 leaves
org/200cm3	number of organisms per 200 cubic centimeters of soil
org/cm ro	organisms per centimeter root
org/cntr	orgamisms per container
org conc/soil c	organism concentration per soil concentration
org/d/cntr	organisms per day per container
org/eu	organisms per experimental unit
org/ft2	organisms per square foot
org/fm	organisms per female
org/g	organisms per gram
org/g dry soil	organisms per gram dry soil
org/g humus	organisms per gram humus
org/g root	organisms per gram root
org/g soil	organisms per gram soil
org/ha	organisms per hectare
org/kg soil	organisms per kilogram soil
org/km2	organisms per square kilometer
org/lit	organisms per litter
org/m2	organisms per square meter
org/mi	organisms per minute
org/plot	organisms per plot
org/sample	organisms per soil sample
org/sector	number of organisms per sector
org/site	organisms per site
org/trap	organisms per trap
org/trap/d	organisms per trap per day
org/tree	organisms per tree
org/wk	organisms per week
oz/acre	ounces per acre
%	percent
% arb	percent arbuscularity
% cell volume	percent cell volume
% CEC	% of soil cation exchange capacity
% clitellate	percent clitellate
% corn	percent corn pollen
% dev CNTL	percent deviation from control
% d wght	percent dry weight
% earliness	percent earliness (percent of total cotton yield obtained during the first picking)
% mg	percent milligrams
% of CNTL	percent of control
% of diet	percent of diet
% of initial	percent of initial quantity
% of max yld	percent of maximum yield
% org	percent of organisms
% PRTL	percent of total protein
% RBC	percent red blood cells
% sat	percent saturation
% tolerance	percent tolerance
% total oil	percent of total oil content
% g	percent grams
%/g	percent per gram
%*g	percent multiplied by weight in grams
%/ml	percent per milliliter
%/org/d	percent per organism per day
% of total	percent of total
%/wk	percent per week
[% inhib]	[percent inhibition]
% S/ppm Zn	percent sulfur per parts per million zinc
%succ br/rm	percent successful broods per female
% wght	percent of weight
% wght/org	percent weight per organism
% v/v	percent volume per volume
pc	permeability constant
PCI	plastochron index
pCi/g	picoCuries per gram
pCi/L	picoCuries per liter
pCi/ml	picoCuries per milliliter
pecks/s	pecks per second

pellet/org/d pellets per organism per day
pg picograms
pg/cell picograms per cell
pg/dm3 picograms per cubic decimeter
pg/g picograms per gram
pg/mg org picograms per milligram organism
pg/ml picograms per milliliter
pg/org picograms per organism
Plg/L PI grams per liter
PLC:BL placenta to blood ratio
pmol/hr/mg picomoles per hour per milligram
pmol/g picomoles per gram
pmol/g/mi picomoles per gram per minute
pmol/L picomoles per liter
pmol/ml picomoles per millimeter
pmol/mg picomoles per milligram
pmol/mg/d picomoles per milligram per day
pmol/mg pro/mi picomoles per milligram protein per minute
pmol/mg/mi picomoles per milligram per minute
pmol/mg/h picomoles per milligram per hour

pmol/nm p450/mi picomoles per nanomole cytochrome P450 per minute
ppb parts per billion
ppb/2H/org per two hours per organism
ppm parts per million
ppm food parts per million food
ppm H2O parts per million water
ppm/organi parts per million per organism
ppm soil parts per million soil
ppm/eu parts per million per experimental unit
pt pints
pt/ac pints per acre

q/ha quintals per hectare (1 quintal = 100 kilograms)

[RA] [ratio: use the number, no unit needed]
RA/wk ratio per week
rate/100 org rate per 100 organisms
rgv relative gray value
RI Ratcliff index (shell wt/egg length x width mm2)
ro/so root to shoot ratio
RR Centric fusions
RV:TV ratio of right ventricle to total ventricle

s seconds
sd/org/d seeds per organism per day
s/g seconds per gram
s/h seconds per hour
SFU sigma Frankel units
sgth:wght Strength to weight ratio
so:gr ratio shoot to grain
so:ro ratio shoot to root
species species
str:gr ratio plant straw to grain
succ br successful broods
succ br/fm successful broods per female

t/ha tons per hectare
t/ha gr/t/ha gr + str tons per hectare grain plus straw
taxa taxa
tillers/m2 tillers per square meter
tons/acre tons per acre
top:root ratio plant tops to roots
treated:cntl ratio treated to control

u units

u act unit activity (an increase in absorbance at 555 nm of 0.100, with a 1.0 cm light path, per milliliter of erythrocytes per hour, at 38 C).
u/co2/50mg/10mi units per carbon dioxide per 50 milligrams per 10 minutes
U of fl units of fluorescence
u/g units per gram
u/l units per liter
u/mg units per milligram
U/mg pro units per milligram protein
u/ml units per milliliter
U/0.2 ml units per 0.2 milliliters
u3 cubic microns
uBq microBecquerels
uCi microcuries
uCi/100g org microcuries per 100 grams

	organism
uCi/3.6mg	microcuries per 3.6 milligrams
uCi/30mg	microcuries per 30 milligrams
uCi/L	microcuries per liter
uCi/g	microcuries per gram
uCi/g org	microcuries per gram organism
uCi/g soil	microcuries per gram soil
uCi/kg	microcuries per kilogram
uCi/mg	microcuries per milligram
uCi/ml	microcuries per millimeter
uCi/nmol	microcuries per nanomoles
uCi/org	microcuries per organism
uCi/ug	microcuries per microgram
uCi/ul	microcuries per microliter
ueq/l	microequivalents per liter
ueq/g	microequivalents per gram
ug	micrograms
ug chl/cm2	micrograms chlorophyll per square centimeter
ug chl/ mg leaf	micrograms chlorophyll per milligram of leaf
ug CO2/g d sl/h	micrograms carbon dioxide per grams dry soil per hour
ug frmzn/100g	micrograms formazan formed per 100 grams tissue (formazans: Coloured azo compounds formed by the reduction of tetrazolium salts. Employing this reaction, oxidoreductase activity can be determined quantitatively in tissue sections by allowing the enzymes to act on their specific substrates in the presence of tetrazolium salts. ug N/g micrograms nitrogen per gram.)
ug/100g	micrograms per 100 grams
ug/100g/d	micrograms per 100 grams per day
ug/100g org/d	micrograms per 100 grams organism per day
ug/100mg/30mi	micrograms per 100 milligrams per 30 minutes
ug/100mg/h	micrograms per 100 milligrams per hour
ug/100ml	micrograms per 100 milliliters
ug/200mg/20mi	micrograms per 200 milligrams per 20 minutes
ug/200mg/30mi	micrograms per 200 milligrams per 30 minutes
ug/24h	micrograms per 24 hours
ug/24h/org	micrograms per 24 hours per organism
ug/50ul	micrograms per 50 microliters
ug/500g	micrograms per 500 grams
ug/bee	micrograms per bee
ug/cell	micrograms per cell
ug/cm2	micrograms per centimeter squared
ug/cm2/d	micrograms per square centimeter per day
ug/cm3	micrograms per cubic centimeter
ug/d	micrograms per day
ug/d/org	micrograms per day per organism
ug/disk	micrograms per disk
ug/dl	micrograms per deciliter
ug/egg	micrograms per egg
ug/eu	micrograms per experimental unit
ug/eu/d	micrograms per experimental unit per day
ug/fish	micrograms per fish
ug/g	micrograms per gram
ug/g bdwt	micrograms per gram body weight
ug/g dry cmpst	micrograms per gram dry compost
ug/g dry wt	micrograms per gram dry weight
ug/g d soil	micrograms per gram dry soil
ug/g food	micrograms pe gram food
ug/g npro	micrograms per gram nonprotein
ug/g om	micrograms per gram organic matter
ug/g org	micrograms per gram organism
ug/g org/d	micrograms per gram organism per day
ug/g org x 1E2	micrograms per gram organism x 1E2
ug/g pro	micrograms per gram protein
ug/g soil	micrograms per gram soil
ug/g tissue	micrograms per gram tissue
ug/g/d	micrograms per gram per day
ug/g/wk	micrograms per gram per week
ug/kg	micrograms per kilogram
ug/kg bdwt	micrograms per kilogram body weight
ug/kg/d	micrograms per kilogram per day

ug/kg LD micrograms per kilogram lipid
ug/kg org micrograms per kilogram organism
ug/kg soil micrograms per kilogram soil
ug/l micrograms per liter
ug/l/d micrograms per liter per day
ug/mg micrograms per milligram
ug/mg pro/hr micrograms per milligram protein per hour
ug/ml micrograms per milliliter
ug/ml H2O micrograms per milliliter water
ug/org micrograms per organism
ug/tank/wk micrograms per tank per week
ug/ul micrograms per microliter
ul microliter
ul3 cubic microliters
ul/100ml microliter per 100 millimeter
ul/20ml microliter per 20 millimeter
ul/beat/kg microliters per beat per kilogram
ul/cm2 microliter per square centimeter
ulCO2/50mgTI/10 microliters carbon dioxide per 50 milligrams tissue per 10 minutes
ul O2/hr/g microliters oxygen per hour per gram
ul O2/mi/g microliters oxygen per minute per gram
ul/egg microliters per egg
ul/g microliters per gram
ul/g/h microliters per gram per hour
ul/kg microliters per kilograms
ul/L microliter per liter
ul/ml microliter per milliliter
uM microMolar
um/s micrometers per second
um2 micromoles squared
um3 cubic micromoles
um3 cubic micrometers
uM/cm3 micromoles per squared centimeter
uM/kg micromolar per kilogram
uM/l microMolar (micromoles per liter)
uM/mg pro micromoles per milligram protein
uM/min/g micromoles per minute per gram
umol micromoles
umol C2H4/g/h micromoles of ethylene produced per gram per hour
umol C2H4/org/h micromoles of ethylene produced per organism per hour
umol CO2/m2/s micromoles CO2 per square meter per second
umol CO2/g/s micromoles CO2 per gram per second
umol CO2/g ch/s micromoles carbon dioxide per gram chlorophyll per second
umol GH/mgpro/m micromoles reduced glutathione per milligram protein per minute
umol/100g micromoles per 100 grams
umol/10g/h micromoles per 10 grams per hour
umol/10mg/h micromoles per 10 milligrams per hour
umol/20mi/g micromoles per 20 minutes per gram
umol/dm3 micromoles per cubic decimeter
umol/eu micromoles per experimental unit
umol/g micromoles per gram
umol/g soil micromoles per gram soil
umol/g/h micromoles per gram per hour
umol/g/mi micromoles per gram per minute
umol/h/mg pro micromoles per hour per milligram protein
umol/kg micromoles per kilogram
umol/kg media micromoles per kilogram media
umol/kg org micromoles per kilogram organism
umol/l micromoles per liter
umoles/l agar micromoles per liter agar
umol/m micromoles per meter
umol/mg micromoles per milligram
umol/mg/20 micromoles per milligram per 20 minutes
umol/mg pro micromoles per milligram protein
umol/mg/h micromoles per milligram per hour
umol/mg/mi micromoles per milligram per minute
umol/mi/g micromoles per minute per gram
umol/mi/h micrograms per minute per hour
umol/mi/mg pro micromoles per minute per milligram protein
umol/ml/mi micrograms per milliliter per minute
umol Pi/mg pro/h micromoles Pi per milligram protein per hour
umol pyv mg p/h micromoles pyruvate per

	milligram protein per hour
units/100ml	units per 100 milliliters
units/l	units per liter
units/mg pro	units per milligram protein
unit/mg pro/mi	enzyme unit per milligram protein per minute
uu/mg	microunits per milligram
uu/mi/ml	microunits per minute per milliliter
uu/ml	microunits per milliliter
V	response value
V/N	response value per number of response sites
V/quadrant	response value per quadrant
v/v	volume per volume
WER	water efficiency ratio
wght/lit	weight per litter
wk	week
[1/h]	[one per hour: use **/h**]
[10x2/mm3]	[10x2 cubic millimeters:use **/mm3**]
[10x3/mm3]	[10x3 cubic millimeters:use **/mm3**]
[10x6/ml3]	[10x6 cubic milliliters: use **/mm3**]
[**10x6/mm3]**	[10x6 cubic millimeters:use **/mm3**]
[10x6/ul]	[10x6 microliters:use **/ul**]
[10x9/l]	[10x9 liters:use **/l**]
1e+3/ml	1 X 10+3/milliliter
1e+3/mm3	1 X 10+3/cubic millimeter
1e+3/ul	1 X 10+3/microliter
1e+12 no/L	1 X 10+12 number/liter
1e+6/ml	1 X 10+6/milliliter
1e+6/mm3	1 X 10+6/cubic millimeter
1e+6/ul	1 X 10+6/microliter
1e+6 no	1 x 10+6 number
1e+6 no/cm3	1 X 10 +6 number per cubic centimeter
1e-2 J/beat/kg	1 x 10 -2 Joules per beat per kilogram
1e-5/mm3	1 X 10 -5/cubic millimeter
1e-2M	1 X 10-2 molar
1e-3M	1 X 10-3 molar
1e-4M	1 X 10-4 molar
1e-5M	1 X 10-5 molar
1e-6M	1 X 10-6 molar
1e-7M	1 X 10-7 molar

Appendix O. Ionic Fraction Codes

Actinium	Ac	Gallium	Ga	Protactinium	Pa
Aluminum	Al	Germanium	Ge	Radium	Ra
Americium	Am	Gold	Au	Radon	Rn
Ammonia (un-ionized)	NH_3	Hafnium	Hf	Rhenium	Re
Ammonium (total)	NH_4	Hydrogen Cyanide	HCN	Rhodium	Rh
Ammonium nitrate	NO3N	Helium	He	Rubidium	Rb
Antimonate	SbO4	Holmium	Ho	Ruthenium	Ru
Antimony	Sb	Hydrogen	H	Samarium	Sm
Argon	Ar	Indium	In	Scandium	Sc
Arsenate	ASO4	Iodine	I	Selenate	SeO4
Arsenic	As	Iridium	Ir	Selenite	SeO3
Astatine	At	Iron	Fe	Selenium	Se
Azide	N3	Krypton	Kr	Silicate	SiO2
Barium	Ba	Lanthanum	La	Silicon	Si
Berkelium	Bk	Lawrencium	Lr	Silver	Ag
Beryllium	Be	Lead	Pb	Sodium	Na
Bismuth	Bi	Lithium	Li	Strontium	Sr
Borate	BO3	Lutetium	Lu	Sulfate	SO4
Boron	B	Magnesium	Mg	Sulfur	S
Bromate	B4O7	Manganate	MnO4	Tantalum	Ta
Bromine	Br	Manganese	Mn	Technetium	Tc
Cadmium	Cd	Mendelevium	Md	Tellurium	Te
Calcium	Ca	Mercury	Hg	Terbium	Tb
Californium	Cf	Methylmercury	MeHg	Thallium	Tl
Carbon	C	Molybdnate	MoO4	Thiocyanate	SCN
Cerium	Ce	Molybdenum	Mo	Thiosulfate	S2O3
Cesium	Cs	Neodymium	Nd	Thorium	Th
Chlorine	Cl	Neon	Ne	Thulium	Tm
Chlorine produced oxidant	CPOX	Neptunium	Np	Tin	Sn
Chlorate	ClO3	Nickel	Ni	Titanium	Ti
Chromium	Cr	Niobium	Nb	Total Residual Bromine	TRBr
Chromate (+6)	CrVI	Nitrate	NO3-	Total Residual Chlorine	TRCl
Cobalt	Co	Nitrite	NO2	Total Residual Oxidant	TROX
Copper	Cu	Nitrogen	N	Triethyl lead	Pb3E
Curium	Cm	Nobelium	No	Tributyltin	TBT
Cyanide	CN	Not reported	NR	Tungstate	WO4
Dysprosium	Dy	Osmium	Os	Uranium	U
Einsteinium	Es	Oxygen	O	Uranium oxide (Uraninite)	UO2
Erbium	Er	Palladium	Pd	Vanadium	V
Europium	Eu	Perchlorate	ClO4	Wolfram	W
Fermium	Fm	Phosphorus	P	Xenon	Xe
Fluorine	F	Platinum	Pt	Ytterbium	Yb
Francium	Fr	Plutonium	Pu	Yttrium	Y
Gadolinium	Gd	Polonium	Po	Zinc	Zn
		Potassium	K	Zirconium	Z
		Praseodymium	Pr		
		Promethium	Pm		

Appendix P. Chemical Analysis Methods

Code	Definition	Description
M	**M**easured	Clearly states in the paper that the concentrations reported by the author were measured.
U	**U**nmeasured	Author clearly identifies that the concentrations are based on nominal values, or the author presents concentration information, but does not report information that chemical analysis was conducted.
NR	**N**ot **R**eported	Author describes methods for analyzing chemical concentrations, but it is not clear that the values presented are based on measured or nominal concentrations.
X	Unmeasured (some measured values reported in article)	Author clearly identifies that some of the concentrations are based on nominal values while other concentrations are based on measured values, with the original nominal values also reported. Record the nominal values in the dose data field.

Appendix Q. Sample Unit Codes for Section V.5. Results Information

Code	Definition
AB	**Ab**ove ground portion (plants)
AD	**Ad**ult
BH	**B**ot**h** male and female organisms exposed or observed
BR	**Br**ood
C1	First Clutch
C2	Second Clutch
CC	**C**o**c**oons
CL	**C**e**l**ls
CB	Combs
CT	**C**on**t**ainers
DC	**D**e**c**eased organism
EG	**Eg**g
EM	**Em**bryo
EU	**E**xperimental **u**nit
F1	**F1** generation
F2	**F2** generation
F3	**F3** generation
FB	Mature, **f**ull-**b**loom (fruit trees)
FF	**F**ields (as in agriculture)
FG	**F**emale **g**ametophyte
FL	**Fl**ower(s)
FM	**F**e**m**ale organisms
G1	females, 1st generation

Code	Definition
G2	females, 2nd generation
G3	females, 3rd generation
GR	**Gr**ains
GS	**G**erminated **s**eed
HC	**H**oney **c**omb
HT	**H**a**t**chling
JV	**J**u**v**enile
KR	**K**e**r**nal
LE	**Le**af
LE1	1st **le**af
LE2	2nd **le**af
LE3	3rd **le**af
LE4	4th **le**af
LE5	5th **le**af
LE6	6th **le**af
LE7	7th **le**af
LE8	8th **le**af
LT	**Li**tters
LV	**L**ar**v**ae
M1	males, 1st generation
M2	males, 2nd generation
M3	males, 3rd generation
MD	**M**ature **d**ormant
MG	**M**ale **g**ametophyte
ML	**M**a**l**e organisms
MT	**M**a**t**ure, no specified stage

Code	Definition
MU	**Mu**ltiple
NR	Applicable information about the organisms was **N**ot **R**eported
NT	**N**es**t**
OR	**O**rganism
PB	Mature, **p**ost-**b**loom (fruit trees)
PH	Mature, **p**it-**h**ardening (fruit trees)
PL	**P**lo**t**s
PR	**P**ai**r**
RB	Mature **r**eproductive, 2nd generation
RC	Mature **r**eproductive, 3rd generation
RO	**Ro**ot
RP	Mature **r**e**p**roductive
RS	**R**oot **s**egments
SA	**S**ub**a**dult
SC	2nd generation (M2), no spec.stage
SD	**S**ee**d**
SG	Mature, **s**ide-**g**reen (fruit trees)
SL	**S**eed**l**ing
SV	**S**ur**v**ivor
TC	**T**issue **c**ulture callus
TU	**Tu**bers
VC	**V**egetative **c**lone
VG	Mature **v**e**g**etative

Appendix R. Effect Group Codes and Definitions

GROUP/EFFECT CODE(S)	DEFINITION
ACC/ACC	**Acc**umulation: Effects, measurements and endpoints which characterize the process by which chemicals are taken into and stored in plants or animals. Includes lethal body burden.
BEH/AVO, BEH, FDB	**Beh**avior: Overt activity of an organism represented by three *effect* groups - avoidance, general behavior, and feeding behavior. All measurements related to reproductive behavior are listed under the major effect group REP.
BCM/BCM, ENZ, HRM,	**B**io**c**he**m**ical: measurement of biotransformation or metabolism of chemical compounds, modes of toxic action, and biochemical responses in plants and animals including three *effect* groups - biochemical, enzyme and hormone effects.
CEL/CEL, GEN, HIS	**Cel**lular Effects: measurements and endpoints regarding changes in structure and chemical composition of cells and tissues of plants or animals as related to their functions; the three *effect* groups include cellular, genetic and histological effects.
GRO/DVP, GRO, MPH	**Gro**wth: a broad category which encompasses measures of weight and length and includes effects on development, growth and morphology. Development covers toxicant effects on tissue organization in growing progeny. Growth represents length and weight changes at any point in the life cycle. Morphology measurements and endpoints address the structure (bones) and form (organ/tissue development) of an organism at any stage of its life history.
MOR/MOR	**Mor**tality: measurements and endpoints where the cause of death is by direct action of the chemical.
PHY/INJ, IMM, ITX, PHY	**Phy**siology: measurements and endpoints regarding basic activity in cells and tissues of plants or animals. Four *effect* groups include injury, immunity, intoxication and general physiological response.
POP/POP	**Pop**ulation: measurements and endpoints relating to a group of organisms or plants of the same species occupying the same area at a given time.
REP/ REP, **AEG**	**Rep**roduction: measurements and endpoints to track the effect of toxicants on the reproductive cycle. All measurements related to reproduction and care of progeny are included in this category, including behavioral and physiological measurements. Measurements related to development of progeny are found under the major *effect* group GRO, minor *effect* group DVP. The *effect* group AEG includes measurements of avian or reptilian eggs.
SYS/PRS	Eco**sys**tem: measurements and endpoints to track the effects of toxicants on ecosystem processes. Includes microbial processes.

NOC/NOC	**No** Group **C**ode: measurements related to multiple or delayed effects or endpoints reported without a specific effect.

Appendix S. Group Effect, Effect and Measurement Codes and Definitions

Note: Codes in < > need maintenance and should not be used for coding at this time.

ACC ACCUMULATION GROUP

ACC ACCUMULATION EFFECT

Measurement Code	Measurement Name	Measurement Definition
<BDBN>	Body Burden	Should be coded as RSDE. If this measurement is associate with an endpoint, should be changed to LBCN or EBCN.
ELIM	Elimination	General term for loss or disappearance of a substance from an organism by either passive or active transport mechanism, e.g. diffusion and metabolic transformation.
GACC	Accumulation, General	Used when more than one measurement is coded for an AQUIRE record..
LBCN	Lethal Body Concentration	Also Lethal Body Burden. The body residue of a chemical that is associated with mortality. .
<RCVY>	Recovery of Lead Shot	
RSDE	Residue	Amount of test chemical remaining in tissue after exposure. This includes body burden or body concentrations. This also includes autoradiography results.
UPTK	Uptake	The fraction of total available chemical in a medium (food, water) that is transferred to the organism (measured as the incoming - outgoing concentrations) OR a process by which materials are transferred into and onto an organism.

BEH BEHAVIOR GROUP

AVO AVOIDANCE EFFECT

Measurement Code	Measurement Name	Measurement Definition
CHEM	Chemical Avoidance	Avoidance or attraction to a chemical gradient.
FOOD	Food Avoidance	Avoidance or attraction to a chemical gradient in food.
GAVO	Avoidance, General	Unknown or multiple types of avoidance responses..
STIM	Stimulus Avoidance	Avoidance or attraction to a stimulus.
WATR	Water Avoidance	Avoidance or attraction to a chemical gradient in water.

BEH BEHAVIOR EFFECT

ACTP	Accuracy of Learned Task, Performance	
ACTV	Activity, General	
AGCL	Aggregation/Clumping	Grouped with the other organisms; aggregating in a group
AGGT	Aggression	Hostile, injurious, or destructive behavior or outlook especially when caused by frustration (MW online).
ATCL	Antennal Cleaning	
BBBH	Burrow or Burial Behavior	
BWAX	Bees Wax Produced	
CASE	Case Leaving Behavior	Change in number of organisms emerging from a casing.
CMST	Compactness of Swimming Track	
COMA	Colony Maintenance (Bees)	
COMB	Comb Built	
DHST	Diameter of Helix of Swimming Track	

BEH BEHAVIOR EFFECT		
DPLY	Displaying Behavior	
DRMT	Dormant, Adverse Condition Response	
DTCH	Ability to Detach from Substrate	Change in ability of an organism to detach from or attach to a substrate.
ECMB	Empty Combs	
EQUL	Equilibrium	Change in ability to maintain balance.
FLTR	Filtration Rate	Change in rate of filtration.
FLYG	Flying Behavior	
FOOT	Foot Retraction	
FRZG	Freezing Behavior	
GBHV	Behavioral Changes, General	Quantifiable change in activity including trained behavior.
<GPRD>	Production, General	
HONY	Honey Produced	
INST	Sleeping Time, Induced	
LOCO	Distance Moved, Change in Direct Movement	Quantifiable change in direct movement .
MIGR	Migration	Quantifiable change in migration behavior.
MOTL	Motility	
NMVM	Movements, Number of	
NVOC	Vocalizations, Number of	
ORNT	Orientation	to set or arrange in any determinate position especially in relation to the points of the compass
PHTR	Phototactic Response	Attraction to or avoidance of light.
POLC	Pollen collected	Collection of a mass of microspores in a seed plant appearing usually as a fine dust (Websters).

BEH BEHAVIOR EFFECT		
PNPY	Prey penetration	The penetration of nematode larvae into a plant root system.
PRVU	Predator Vulnerability	Quantifiable change in ability to avoid or escape capture.
RRSP	Righting Response	
RSPT	Response Time to a Stimulus	
STRS	Observed Stress	Observed physiological tension or irritation in animals or plants.
SURF	Surfacing	
SWIM	Swimming	
THML	Temperature Tolerance	Change in tolerance to temperature change.
VACL	Valve Closure	Change in the ability to open or close a shell valve upon mechanical stimulation and/or gaping response.
VCLF	Visual Cliff	

FDB FEEDING BEHAVIOR EFFECT		
BGNG	Begging Behavior	
FCNS	Food Consumption (Amount or Rate)	
FDNG	Feeding Behavior (Activity)	
FECL	Fecal Production	
FEFF	Feeding Efficiency	
FSTR	Food Storage	
FTIM	Feeding Time	
GFDB	Feeding Behavior, General	
LTBD	Litter Breakdown	
PRBE	Predatory Behavior	Change in ability to seek and capture prey.
STRK	Strikes	Number of times food source was hit.
WCON	Water Consumption	

BCM BIOCHEMICAL GROUP

BCM BIOCHEMICAL EFFECT

Measurement Code	Measurement Name	Measurement Definition
5HAA	5-Hydroxyindole Acetic Acid	A product of serotonin metabolism excreted by patients with carcinoid tumors. (5-HIAA.)
AABA	Alpha-aminobutyric Acid	Inhibitory amino acid - alpha form of GABA
ACAR	alpha-Carotene	One of several orange or red crystalline hydrocarbon pigments C40H56 that occur in the chromoplasts of plants and in the fatty tissues of plant-eating animals and are convertible to vitamin A
ACHL	Acetylcholine	A reversible acetic acid ester of choline, and a cholinergic agonist serving as a neurotransmitter (ACh).
ACID	Acid Produced	
ACRR	Acetylene Reduction Rate/plant Roots Nodulated	
ACTN	Actin	A muscle protein that is the chief constituent of the Z-band myofilaments of each sarcomere.
ADNY	Adenvlate	An enzyme that catalyzes the formation of cyclic AMP from ATP (MW on-line)
ADPT	Adenosine diphosphate (ADP)	A neucleotide, the 5'-pyrophosphate of adenosine, involved in energy metabolism. It is produced by hydrolysis of ATP and converted back to ATP by the process of oxidative phosphorolation and substrate phosphorolation
AGLB	alpha-Globulins	A simple globular protein which cannot be dissolved in pure water but which can be dissolved if a salt is added to the water. It can also be precipitated out of solution and into a solid with a solution of ammonium sulphate at 50% saturation (Graylab on-line medical dictionary).
AGPT	alpha-glycerophosphate	A salt or ester of either of the glycerophosphoric acids.
ALAN	Alanine	A neutral amino acid occurring in two forms alpha and beta.
ALBE	Albumen Energy	Albumin - any protein that is soluble in water and moderately concentrated salt soln, and is coagulable by heat.

BCM BIOCHEMICAL EFFECT		
ALBM	Albumin	any of numerous simple heat-coagulable water-soluble proteins that occur in blood plasma or serum, muscle, the whites of eggs, milk, and other animal substances and in many plant tissues and fluids (Webster's).
ALCO	Aluminum Content	
ALLA	Allantoin	A crystallizable oxidation product of uric acid found in allantoic and amniotic fluids and in fetal urine.
ALLT	Allantoic Acid	A crystallizable acid obtained by hydrolysis of allantoin; intermediate product in nucleic acid metabolism.
AMAC	Amino Acid(s), General Term	Any organic comp containing an amino and a carboxyl group.
AMMO	Ammonia	A colorless alkaline gas
AMNH	P-amino Hippurate	A salt of aminohippuric acid, the glycine conjugate of amniobenzoic acid, salt is used to measure the effective renal plasma flor and to determine the functional capacity of the tubular excretory mechanism (PAH or PAHA).
AMNN	Amino Nitrogen	Nitrogen combined with hydrogen in the amino group. Also known as ammonia nitrogen.
AMPT	Adenosine monophosphate (AMP)	A neucleotide, the 5'-phosphate of adenosine, involved in energy metabolism. It is produced by hydrolysis of ATP and converted back to ADP by adenylate kinase. Also called adenylic acid.
ANTH	Anthocyanins	Any of the intensely colored, sap-soluble glycoside plant pigments responsible for most scarlet, purple, mauve, and blue coloring in higher plants.
ANTC	Anthrocyanin	
<AOCN>	Arterial Oxygen Content	Use OCON as measurement and response site ART
APHT	Alkaline phosphate	
ARCH	arachidonate	An essential unsaturated fatty acid that humans use to synthesise regulatory molecules such as prostaglandins and thromboxanes. It is found in fatty animal tissue such as egg yolk and liver.
ARGI	Arginine	An amino acid, produced by hydrolysis of proteins.
ASCA	Ascorbic Acid	Vitamin C. A white, crystalline, water-soluble vitamin found in many plant materials, especially citrus fruit.
ASCO	Arsenic content	

BCM BIOCHEMICAL EFFECT		
<ASHC>	Ash Content	The mass of incombustible material remaining after burning a given coal sample as a percentage of the original mass of coal.
ASPA	Aspartate	A salt of aspartic acid - a nonessential amino acid occurring in proteins.
ATCO	alpha-Tocopherol concentration	One of eight compounds that occur in nature that have vitamin E activity, an essential vitamin that functions as an antioxidant.
ATPT	Adenosine Triphosphate	(ATP) A coenzyme composed of adenosinediphosphate with an additional phosphate group; an important energy compound in metabolism.
7BRF	7-Benzyloxyoxyresorufin	
B2MG	beta2-Microglobulin	A small, nonpolymorphic protein, homologous to the C3 domain of IgG, that is one subunit of class I major histocompatibility antigens.
BACO	Barium content	
BCAR	beta-Carotene	One of several orange or red crystalline hydrocarbon pigments C40H56 that occur in the chromoplasts of plants and in the fatty tissues of plant-eating animals and are convertible to vitamin A
BCON	Boron Content	
BFCO	Bromoform concentration	A colorless liquid, slightly soluble in water; used in the separation of minerals.
BGLB	beta-Globulins	A simple globular protein which cannot be dissolved in pure water but which can be dissolved if a salt is added to the water. It can also be precipitated out of solution and into a solid with a solution of ammonium sulphate at 50% saturation (Graylab on-line medical dictionary).
BHNC	Behenic Acid	
BIOT	Biotin Content	Biotin - structure identical to vitamin H and coenzyme R; ubiquitous member of the Vitamin B complex required by or occurring in all forms of life.
BPHY	b-phycoerythrin	A protein
<BUNT>	Blood Urea Nitrogen	Nitrogen attached to urea which is a waste product of protein metabolism. Measured to assess kidney function.
C4CD	C4 acids	Initial product of photosynthesis.
C9BT	Total 9b,19-cyclopropylsterols	Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility
CACO	Calcium Content	Found in nearly all organized tissues

BCM BIOCHEMICAL EFFECT		
CAAL	Calcium to aluminum Ratio	The ratio of the amount of calcium to aluminum in an organism or organism's parts.
CAMP	Adenosine 3',5'-cyclic Monophosphate	A key regulator which acts to control the rate of a number of cellular processes in bacteria, most animals, and some higher plants.
CANA	Calcium to sodium ratio	Ratio of calcium to sodium in an organism or organism's tissues.
CAPH	Calcium/Phosphorus Ratio	Calcium and phosophorus form Calcium phosphate, the dense hard material found in teeth and bones
CARB	Carbohydrate	An aldehyde or ketone derivative of a polydric alcohols, including starches, sugars, coluloses and burns.
CARC	Carotenoid Content	Isomeric pigments having colors from violet to yellow.
CARO	Carotene	Any of several red, crystalline carotenoid hydrocarbon pigments occurring widely in nature, convertible in the animal body to Vitamin A.
CAZN	Calcium to Zinc Ratio	Ratio of calcium to zinc in an organism or organism's tissues.
CCON	Carbon Content	
CDAI	Cadmium Accumulation index	The ratio of a chemical in the organism to the ratio of the chemical in the soil.
CDCO	Cadmium Content	
CDST	acid soluble thiol	
CDPR	Cadmium to Phosphorus ratio	The ratio of cadmium to phosphorus.
CDZN	Cadmium to Zinc Ratio	The ratio of cadmium to zinc.
CHLA	Chlorophyll 'A' Concentration	Pigment found in photosynthetic cells; occurs in all organisms exhibiting aerobic photosynthesis
CHLB	Chlorophyll 'B' Concentration	Pigment found in photosynthetic cells; occurs in all higher plants

BCM BIOCHEMICAL EFFECT		
CHLC	Chlorophyll C concentration	Any of a group of green magnesium-containing porphyrin derivatives occurring in all photosynthetic organisms. Chlorophylls act as respiratory pigments, converting light energy to reducing potential. Chlorophyll C occurs in diatoms and brown algae.
CHLN	Choline	Considered to be a vitamin of the B complex, found in many animal and plant tissues
CHLO	Chlorophyll, General	Pigment found in photosynthetic cells. Measurable change in chlorophyll content including chlorophyll content, chlorosis.
CHLR	Chloride	Salt of hydrochloric acid; any binary comp of chlorine
CLCO	Chlorine concentration	
CHOL	Cholesterol	A pearly, fatlike steroid alcohol, found in animal fats and oils, bile, blood, brain tissues, milk, egg yolk, myelin sheath, liver, kidneys and adrenal gland - precursor to Steroids and sex hormones.
CHYM	Chymotrypsinogen	An inactive proteolytic enzyme of pancreatic juice; converted to the active form, chymotrysin, by trypsin.
CMPH	Camphor Concentration	
CNRA	Carbon to Nitrogen Ratio	
CO2C	Carbon Dioxide Content	
COCO	Cobalt Content	
CPRP	Coproporphyrin	Produced by oxidation of the methylene bridges in coproporphrynogen - an intermediate in the formation of heme; coproporphyrin III is excreted in the feces in hereditary coproporphyria;
CRCO	Chromium content	
CREA	Creatinine	Anhydride of creatine; found in muscle and blood and excreted in the urine.
CRPR	Chromium to Phosphorus Ratio	
CUAI	Copper Accumulation index	The ratio of a chemical in the organism to the ratio of the chemical in the soil.

BCM BIOCHEMICAL EFFECT		
CUCD	Copper to Cadmium ratio	The ratio of copper to cadmium.
CYTN	Cysteine	A crystalline sulfur-containing amino acid $C_3H_7NO_2S$ readily oxidizable to cystine.
CYSI	Cystine	
CUCO	Copper Content	Metal; is essential in nutrition, component of various proteins
CUMN	Copper to Manganese Ratio	
CUMO	Copper to molybdenum ratio	Ratio of copper to molybdenum in an organism or organism's tissues.
CUZN	Copper to Zinc Ratio	
<D44T>	Total 4,4 Dimethylsterols	Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility
DGDG	Digalactosyl Diglyceride (Glycolipid)	Glycolipid - lipid contaiing carbohydrate groups, usually galactose. The simplest are the glycodiacyl-glycerols.
<DI4T>	Total 4-dimethysterols	
DISC	Diethylsuccinate Hydrolysis	
DPHZ	1, 1-Diphenyl-2-picryl hydrazyl	
DTBL	Direct Bilirubin (Conjugated)	Bilirubin - breakdown product of heme, normally circulates in plasma as a complex with albumin and is taken up by the liver cells and conjugated
ECCR	Echinochrome	A quinone, echinochrome, is the red coloring matter in sea urchins and sand dollars.
ECSP	Eicosapentaenoate	A fatty acid.
ELYT	Electrolytes	A chemical compound which when molten or dissolved in certain solvents, usually water, will conduct an electrical current.
ERUC	Erucic Acid	A monoethenoid acid that is the cis isomer of brassidic acid and makes up 40 to 50% of the total fatty acid in rapeseed, wallflower seed, and mustard seed.

BCM BIOCHEMICAL EFFECT		
ESAA	Amino Acids, Essential	Amino acids required for protein synthesis that cannot be synthesized by the organism and therefore must be maintained in the diet.
ETCO	epsillon-Tocopherol concentration	One of eight compounds that occur in nature that have vitamin E activity, an essential vitamin that functions as an antioxidant.
7ERF	7-Ethoxyresorufin	
ETHL	Ethylene	A colorless, flammable gas with a sweet taste and order.
FAME	Fatty Acid Methyl Ester	
FATL	Fatty acid, total	Total amount of fatty acids .Any number of saturated aliphatic monocarboxylic acids. A metabolic byproduct from the breakdown of fats. Chemically R COOH where R is an aliphatic moiety.
FBNT	Fibronectin	A large glycoprotein found on the surface of cells and mediates cellular adhesion, control of cell shape and cell migration.
FEAI	Iron Accumulation index	The ratio of a chemical in the organism to the ratio of the chemical in the soil.
FEMN	Iron to Manganese Ratio	
FEZN	Iron to zinc ratio	
FFTA	Fatty Acids, Free or Nonesterified	Straight chained monocarboxylic acid, that are nonesterified; the fraction of plasma fatty acids that are not in the form of glycerol; transported complexed with albumin
FLRS	Fluorescence	Used for algae or other organisms that naturally fluoresce, may be used to measure chlorophyll or population growth rate. For example, if it is specifically stated that fluorescence is used to measure chlorophyll A, code the measurement as CHLA. Property of emitting light while exposed to light, the emitted light having a wavelength only slighltly longer than that of the light absorbed
GABA	gamma-Aminobutyric acid	Thought to be a central nervous system postsynaptic inhibitory transmittor.
GBCM	Biochemical, General	Biochemistry - the chemistry of living organisms and the vital processes; physiological chemistry.
GESM	Geosmin	Geosmin, trans-1,10-dimethyl-trans-9-decalol, is a metabolite produced by several cyanobacteria species at varying amounts.
GERA	Geranyl Acetate	

BCM BIOCHEMICAL EFFECT		
GERN	Geraniol	Used in perfumery and flavoring.
GGLB	gamma-Globulins	A simple globular protein which cannot be dissolved in pure water but which can be dissolved if a salt is added to the water. It can also be precipitated out of solution and into a solid with a solution of ammonium sulphate at 50% saturation (Graylab on-line medical dictionary).
GINS	Ginsenosides	
GLCN	Glycine	An amino acid
GLTH	Glutathione	A widely distributed tripeptide that is important in plant and animal tissue oxidation reactions.
GLTT	Glutamate	A salt or ester of glutamic acid.
GLUC	Glucose	A sugar
GLYC	Glycogen	A polysaccharide stored in the liver and muscles
GLYP	Glycoprotein Composition	Glycoprotein - Any of a class of conjugated proteins containing both carbohydrate and protein units.
GLYT	Total Glycolipid Content	Glycolipid - a lipid containing carbohydrate groups
GMIN	Glutamine	Monoamide of flutamic acid, important carrier of urinary ammonia and is broken down in the kidney by the enzyme glutaminase
GTCO	gamma-Tocopherol concentration	One of eight compounds that occur in nature that have vitamin E activity, an essential vitamin that functions as an antioxidant.
GTMA	Glutamic acid	An amino acids commonly found in proteins. Plays a central role in amino acid metabolism, acting as precursor of glutamine, proline and arginine.
GYCL	Glycerol content	A sweet syrupy hygroscopic trihydroxy alcohol C3H8O3 usually obtained by the saponification of fats and used especially as a solvent and plasticizer .
H108	Heat shock protein 108	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
H2O2	Hydrogen Peroxide	Unstable colorless liquid used as a bleach, chemical intermediate, rocket fuel, and antiseptic.
HEME	Heme Content	Heme - any quadridentate chelate of iron with the four pyrrole groups of a porphyrin; found in blood
<HEMT>	Hematological Parameters	

BCM BIOCHEMICAL EFFECT		
HIST	Histidine	An amino acid
HITY	Histidine to tyrosine ratio	Ratio of histidine to tyrosine in an organism or organism's tissues
HMCT	Hematocrit (Anemia)	Measurement of the volume of packed red cells in a blood specimen after centrifugation of hematocrit tube
HMCY	Hemocyanin	A blue respiratory pigment found only in mollusks and in arthropods other than insects.
HMGL	Hemoglobin	Oxygen carrying pigment of the erythrocytes
HMGT	Hemagglutinin	An erythrocyte-agglutinating antibody.
HNMS	N[3H-methyl]scopolamine	
HP32	Heat shock protein 32	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HP42	Heat shock protein 42	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HP52	Heat shock protein 52	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HP60	Heat Shock Protein 60 (HSP60)	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HP70	Heat Shock Protein 70 (HSP70)	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HP72	Heat shock protein 72	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HP90	Heat shock protein 90	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HP96	Heat shock protein 96	Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage.
HXDC	Hexadecenoate	A fatty acid.

BCM BIOCHEMICAL EFFECT		
IBIL	Indirect Bilirubin (Free)	Bilirubin - breakdown product of heme, normally circulates in plasma as a complex with albumin and is taken up by the liver cells and conjugated
ILEU	Isoleucine	An amino acid
IMNT	Iso-menthone	
FECO	Iron Content	Metal that is an essential constituent of hemoglobin, cytochrome and other components of respiratory enzyme systems; chief function is the transport of oxygen to tissues and in cellular oxidation mechanisms
LA2S	L-Ascorbyl-2-sulfate	
LACT	Lactate	The anionic form of lactic acid, a salt of lactic acid
LASC	L-ascorbic acid	Synonym-ascorbic acid (ASCA). Vitamin C. A water-soluble vitamin found in many fruits and vegetables. (Dorlands)
LASS	L-ascorbyl-2-sulfate	A stable derivative of ascorbic acid used as a source of vitamin C. http://www.asasea.com/technical/AQ48-okeefe.pdf
LCCT	Leucocrit	(leukocrit) the volume percentage of leukocytes in whole blood
LCTA	Lactic Acid	Metabolic intermediate involved in biochemical processes, end product of glycolysis
LDNT	Lipids, Neutral	
LDPL	Lipids, Polar	
LDPO	Lipid Peroxides	Peroxides produced in the presence of a free radical by the oxidation of unsaturated fatty acids in the cell in the presence of molecular oxygen. The formation of lipid peroxides results in the destruction of the original lipid leading to the loss of integrity of the membranes. They therefore cause a variety of toxic effects in vivo and their formation is considered a pathological process in biological systems. Their formation can be inhibited by antioxidants, such as vitamin e, structural separation or low oxygen tension.
PBAI	Lead Accumulation index	The ratio of a chemical in the organism to the ratio of the chemical in the soil.
PBCO	Lead Content	Metal
LEUC	Leucine	An amino acid
LGHE	Leghemoglobin	Leghemoglobin is a red-colored enzyme active in the environment of N2-fixing nodules; leghemoglobin mediates the high O2 requirements of the N2-fixing bacteroids and the necessity of the O2-limited environment.

BCM BIOCHEMICAL EFFECT		
LICO	Lithium content	
LIMO	Limonene	A terpene with a lemon odor that is found in oils from citrus fruits and in oils from peppermint and spearmint.
LINA	Linalool	A terpene that has a bergamot odor and is found in many essential oils, paticularly in bergamot and rosewood; used as a flavoring agent and in perfumes.
LINO	Linoleic Acid	A principal fatty acid in plants and considered essential in animal nutrition; used in medicine, feeds, paints, and margarine.
LIPD	Lipid	Fat or fat-like substances
LIPT	Lipid Content, Total	
LNEI	Linolenic and Eicosenoic Acid	Linolenic acid - One of the principle unsaturated fatty acids in plants and essential fatty acids in plants and an essential fatty acid in animal nutrition. Eicosenoic acid - a saturated fatty acid; a constituent of butter.
LNLT	Linoleate	A fatty acid. A salt of linoleic acid.
LPFS	Lipofuscin	Any of a group of liquid pigments found in cardiac and smooth muscle cell, in macrophages, and in parenchyma and interstitial cells; differential reactions include sudanophilia, Nile blue staining, fatty acid , glycol, and ethylene
LPSA	Lipid Soluble Antioxidants	Antioxidant - substance that prevents or delays deterioration by action of oxygen
LYSI	Lysine	An amino acid
LUTE	Lutein	An orange xanthophyll C40H56O2 occurring in plants, animal fat, egg yolk, and the corpus luteum.
MCHC	Mean Corpuscular Hemoglobin Concentration	The mean concentration of hemoglobin in the red blood cell (hemoglobin/hematocrit).
MCHG	Mean Corpuscular Hemeglobin	The mean mass of hemeglobin in the red blood cell (hemeglobin * 10/red blood cell count).
MCPR	Microsomal Proteins	Proteins found in microsomes

BCM BIOCHEMICAL EFFECT		
MCPV	Mean Corpuscular Volume	Measure average size of a single red blood cell. Used to classify anemias. Derived value obtained by dividing hematocrit / Total RBC
MCYS	Microcystin	.M. aeruginosa produces compounds called microcystins, which are potent hepatotoxins and probable tumor promoters.
METH	Methionine	An amino acid
7MRF	7-Methoxyresorufin	
MGAL	Magnesium to aluminum ratio	The ratio of the amount of magnesium to aluminum in an organism or oranism's parts.
MGCO	Magnesium	Metal, that is essential in nutrition, required for the activity of many enzymes, especially those concerned with oxidative phosphorylation
MGDG	Monogalactosyl Diglyceride (Glycolipid) Content	Glycolipid - lipid contaiing carbohydrate groups, usually galactose. The simplest are the glycodiacyl-glycerols.
MGLB	Methaemoglobin	Hemoglobin in the oxidized state.
MLAT	Malate	A salt of malic acid.
MLDH	Malondialdehyde	Malonaldehyde is found in many foodstuffs and can be present at high levels in rancid foods. It is present as a lipid metabolite in human and animal tissues. It is probably used only as a research chemical.
MNAI	Manganese Accumulation index	The ratio of a chemical in the organism to the ratio of the chemical in the soil.
MNAC	Menthyl Acetate	
MNCO	Manganese Content	Metal, occur in body tissue in very small amounts and acts as an activator of liver arginase and other enzymes
MNFE	Manganese to iron ratio	Ratio of manganese to iron in an organism or organism's tissues
MNTH	Menthone	Oily, colorless ketonic liquid with slight peppermint odor.
MOCO	Molybdenum Content	A silvery metal used in iron-base alloys.
MRNN	Marennine	A blue pigment secreted by algae.
MTHL	Menthol	A compound used in medicines and perfumes, and as flavoring agent. Also known as peppermint camphor.

BCM BIOCHEMICAL EFFECT		
MTLN	Metallothionein	A group of vertebrate and invertebrate proteins that bind heavy metals that may b e involved in zinc homeostasis and resistance to heavy-metal toxicity.
MUCR	Muscarinic Chlolinergic Receptor	
NADG	beta-N-Acetyl-D-glucosaminidase	A lysosomal enzyme known to be released from macrophages during inflammation.
<NADP>	Nicotinamide-adenine Dinucleotide Phosphate, Reduced	(nicotinamide) NADP - a coenzyme compound of robosylnicotinamide 5'-phosphate, serves as an electron carrier in a number of reactions
NO3-	Nitrate	
NCON	Nitrogen	Gaseous element that is a constituent of protein and nucleic acids and is present in all living cells
NEAA	Amino Acids, Nonessential	The amino acids required for protein synthesis that are synthesized by the organism and are not specifically required in the diet
NICO	Nickel Content	
NIFE	Nickel to nitrogen ratio	Ratio of nickel to nitrogen in an organism or organism's tissues.
NPSH	Nonprotein Sulfhydryl	Sulfhydryl - the univalent radical of sulfur
NPSS	Ninhydrid-positive Substances	
NRGC	Energy Compound	
NSRA	Nitrogen to sulfur ratio	
NSUG	Non-reducing sugars	Sugar and therefore does not react with amino acids or proteins.
NUAC	Nucleic Acids	A large, acidic, chainlike molecule containing phosphoric acid, sugar, and purine and pyrimidine bases; two types are ribonucleic acid and deoxyribonucleic acid.
NUTR	Nutrient Status Change	

BCM BIOCHEMICAL EFFECT		
NXNT	Neoxanthine	Carotenoid pigments involved in photosynthesis. Consist of oxygenated carotenes, eg. lutein, violaxanthin and neoxanthine.
OACD	Organic acids	Initial product of photosynthesis.
OGLT	Oxidized glutathione	Predominant non-protein thiol in animal tissues and in many physiological fluids
OHGL	O2 Specific Bond to Hemoglobin	
OLCO	Oil Content	
OLEC	Oleic Acid	Yellowish, unsaturated fatty acid with lardlike aroma; the main component of olive and cooking oils; used in soaps, ointments, cosmetics, and ore beneficiation.
OLYD	Oil Yield	
ORNI	Ornithine	An amino acid
OCON	Oxygen Content	
OSDB	Oestradiol breakdown products	Amount of polar metabolites formed in nmoles/ g microsomal fraction from the breakdown of estradiol.
OXHC	Oxyhemocyanin	Hemocyanine charged with oxygen
PARG	Phosphoarginine	A high-energy phosphate compound that is primarily found in invertebrates.
PALL	Palmitoleic Acid	An unsaturated fatty acid, found in marine animal oils.
PALM	Palmitic Acid	A fatty acid derived from spermaceti; used to make metal palmitates and in soaps, water-proofing , and lubricating oils.
7PRF	7-Pentoxyresorufin	
PBHB	Poly-b-hydroxybutyrate	
PCLV	Packed Cell Volume	The venous hematocrit determined by centrifucation; the number of packed red cells in ml/100ml of centrifuged blood
PDST	Phosphodiester	
PEGE	Polyethylene Glycol (Peg) Efflux	

BCM BIOCHEMICAL EFFECT		
PFER	Phosphorus to Iron Ratio	
PHEN	Phenylalanine	An amino acid
PCON	Phosphorus Content	Essential element in the diet, found in bones, abundant in all tissues, is involved in some form in almost all metabolic processes
PHPH	pH	Hydrogen ion concentration
PHSC	Phosphatidyl Choline (Phospholipid) Content	Choline attached to a phospholipid; major component of cell membranes
PHSE	Phosphatidyl Ethanolamine (Phospholipid) Content	A phospholipid with an ethanolamine attached; major constituent of cell membranes
PHSG	Phosphatidyl Glycerol (Phospholipid) Content	
PHSI	Phosphatidyl Inositol (Phospholipid)	A phosopholipid with the sugar inositaol attached; minor constituent of cell membranes
PHSP	Phosphatide Phosphorus	Phospholipid with phosphorus
PHST	Phospholipid Content, Total	Phosopholipid - major form of lipid in cell membranes
3PPG	3-phosphoglycerate	One of the molecules involved in the Calvin cycle which is the fixation of carbon dioxide during photosynthesis
PHTC	Phytochelatin	Phytochelatins are small polypeptide compounds produced in plants by enzymes which are expressed in response to heavy-metals (Cd2+, Pb4+) .
PHYC	Phycocyanin	A blue phycobilin. Phycobilin - any of various protein-bound pigments which are open chain tetrapyrroles and occur in some groups of algae.
PINE	Alpha-pinene	Isomeric unsaturated bicyclic terpene hydrocarbon liquids derived from sulfate wood turpentine; used as solvents for coatings and wax formulations, as chemical intermediates for resins, and as lube-oil additives.
PLAC	Pulp:Acid	Pulp to acid ratio

BCM BIOCHEMICAL EFFECT		
PLAT	Platelets	a minute flattened body, especially blood platelets
PMST	Phosphomonoester	
POLD	Peroxidizable lipids	Lipids that are able to be peroxidized.
PORP	Porphyrin	Found in prosthetic groups of hemoglobin, myoglobin, and cytochromes
KCON	Potassium Content	Metallic element of the alkali group, chief cation of muscle and most other cells (intracellular fluid)
PPHT	Phosphate	Phosphate esters occur in many body constitutents including nucleotides and nucleic acids, phospholipids, and phophoproteins
PRCO	Protein Content	Protein - principle component of protoplams of cells; a combination of amino acids in peptide linkages.
PRLN	Proline	A heterocyclic amino acid occurring in essentially all proteins, and as a major constituent in collagen protein.
PROB	Protein binding	
PRSL	Soluble Protein	Protein - principle component of protoplams of cells; a combination of amino acids in peptide linkages.
PRTL	Protein, Total	
PRTO	Protoporphyrin	Combines with heme to form the heme prosthetic group of hemoglobin and myoglobin
PSCY	Plastocyanin	A prototypical blue-copper 'cupredoxin' protein, whose function is electron transfer in photosynthesis.
PSPH	Phosphagen	A nutrient formed from 3 specific amino acids that saturate muscle tissue with creatine which is a compound of muscle energy production
PSPY	Phosphoenol pyruvate	An important metabolic intermediate. The enol (less stable) form of pyruvic acid is trapped as its phosphate ester, giving the molecule a high phosphate transfer potential. Formed from 2 phosphoglycerate by the action of enolase.
PYRT	Pyrethin	A relatively safe botanical poison derived from a species of chrysanthemum, it breaks down quickly in the environment. It kills by interfering with the pattern of insect nerve transmissions.
PYRV	Pyruvate	The end product of glycolysis (used synonymously with pyruvic acid)

BCM BIOCHEMICAL EFFECT		
PZNR	Phosphorus to Zinc ratio	Ratio of phosphorus to zinc in an organism or organism's tissues.
RBVL	Relative Blood Volume (Volume/100g Body Weight)	Sum of red cell volume and plasma volume in relation to body weight
<RGSH>	Reduced Gluthione	Reduced form (less hydrogen) of glutathione
RIBO	Riboflavin Content	The heat stable factor of the vitamin B complex; serves as a component of two coenzymes - FAD and FMN
RIDX	Refractive Index	The refractive power of a medium with that of air which is assumed to be 1
RSUG	Reducing sugars	Reducing sugars refer to any saccharide bearing an anomeric carbon atom which has not formed a glycosidic bond. So called because of the facility with which the aldehyde group reduces mild oxidising agents.
SCCN	Succinate	A salt or ester of succinic acid; for example sodium succinate, the reaction product of succinic acid and sodium hydroxide.
SCON	Sulfur Content	
SECO	Selenium content	
SERI	Serine	An amino acid
SESR	Selenium to sulfur ratio	
SGMP	Sugar monophosphates	Initial product of photosynthesis.
SGRV	Specific gravity	the ratio of the density of a substance to the density of some substance (as pure water) taken as a standard when both densities are obtained by weighing in air
SICO	Silicon content	
SPHS	Sugar phosphates	Initial product of photosynthesis.
SQVD	Sulfoquinovosyl diglyceride	A lipid
SSER	Sulfur to Selenium Ratio	
<SMET>	Secondary Metabolism	

BCM BIOCHEMICAL EFFECT		
NACO	Sodium Content	Alkaline metallic element, chief cation of the extracellular body fluids
SRCO	Strontium Content	
SSUG	Soluble Sugars	
STER	Stearic Acid	Nature's most common fatty acid, derived from natural animal and vegetable fats.
STRH	Starch Content	Polysaccharide
SUGA	Sugar Content	A sweet carbohydrate
TBAR	Thiobarbituric Acid Reactive Substances	
TCTP	translationally controlled tumor protein	
TEAM	Tetraethyl Ammonium	The bromide and chloride salts are short acting quaternary ammonium ganlion-blocking agents;
TERP	T-terpinene	
TFAA	Amino Acids, Total Free	
THBA	Thiobarbituric Acid	A condensation of malonic acids and ureas; parent compound for a class of barbiturates
THRE	Threonine	An amino acid
TICO	Thallium content	
TLBL	Bilirubin, Total	Bilirubin - breakdown product of heme, normally circulates in plasma as a complex with albumin and is taken up by the liver cells and conjugated
TNSC	Total Non-structural Carbohydrate	
TPSY	Trypsin	A proteolytic enzyme which catalyzes the hydrolysis of peptide linkages in proteins.
TRIB	Tributyrin	A colorless fat, found in cows milk
TRIG	Triglycerides	A neutral fat synthesized from carbohydrates for storage in animal adipose cells; on enzyme hydrolysis it releases free fatty acids in the blood

BCM BIOCHEMICAL EFFECT		
TRTY	Trytophan to tyrosine ratio	The ratio of trytophan to tyrosine in an organism or organism's tissues.
TRYP	Tryptophan	Amino acid
TRYS	Trypsinogen	The zymogen of trypsin, secreted in the pancreatic juice. Also known as protrypsin.
TTAA	Amino Acids, Total	Measure of total amino acids - any organic comp containing an amino and a carboxyl group
TYMD	Thymidine	A nucleoside derived from DNA; essential growth factor for certain microorganisms in mediums lacking vitamin B12 and folic acid.
TYRO	Tyrosine	An amino acid
UDPA	Uridine Diphosphate (UDP) Acetylglucosamine	
UREA	Urea	Formed in the liver via the urea cycle from ammonia produced by the deamination of amino acids
URIC	Uric Acid	The end product of purine catabolism in primates.
VALI	Valine	An amino acid
VCON	Vanadium content	
VITE	Vitellogenin	The serum phospholipoglycoprotein precursor to egg yolk
VLXN	Violaxanthine	Carotenoid pigments involved in photosynthesis. Consist of oxygenated carotenes, eg. lutein, violaxanthin and neoxanthine.
VMAC	Vanillylmandelic acid	A metabolite of norepinephrine.
VTD3	Vitamin D3	Also called cholecalciferol; fat soluble vitamin
VTME	Vitamin E	Any of a series of eight related compounds called tocopherols, alpha-tocopherol having the highest biological activity; occurs in wheat germ and other naturally occuring oils.
WTCO	Water Content	
<YLKE>	Yolk Energy	

BCM BIOCHEMICAL EFFECT		
ZNAI	Zinc Accumulation index	The ratio of a chemical in the organism to the ratio of the chemical in the soil.
ZNCD	Zinc to cadmium ratio	Ratio of zinc to cadmium in an organism or organism's tissues.
ZNCO	Zinc Content	Necessary in trace amounts in the body; it forms an essential part of enzymes and plays an important role in protein synthesis and cell division
ZNFE	Zinc to iron ratio	Ratio of zinc to iron in an organism or organism's tissues
ZNNA	Zinc to sodium ratio	Ratio of zinc to sodium in an organism or organism's tissues.
ZPRO	Zona Radiata Protein	

ENZ ENZYME EFFECT		
Measurement Code	**Measurement Name**	**Measurement Definition**
2OHB	2-OH Biphenyl Hydroxylase	
450R	NADPH-cytochrome P-450 Reductase	
4OHB	4-OH Biphenyl Hydroxylase	
5NLT	5-Nucleotidase activity	A liver enzyme that can be measured in the bloodstream. It can be a specific indicator for liver disease when it is elevated
AATT	Alanine Aminotransferase	
ACHE	Acetylcholinesterase	
ACPH	Acid Phosphatase	
AEPX	Aldrin Epoxidase	
AGKN	Arginine kinase	Acts to maintain steady-state ATP concentrations by mobilizing stores of high energy phosphate during periods of rapid ATP hydrolosis
AHDX	Aniline Hydroxylase	

ENZ ENZYME EFFECT		
<AHHD>	Aryl Hydrocarbon Hydrolase	
AKPT	Alkaline protease	These proteases work best in the pH range of 8 to 11 and are used widely in washing powders and to de-hair hides.
AKPY	Alkaline pyrophoshatase	A group of enzymes within the class EC 3.6.1.- that catalyze the hydrolysis of diphosphate bonds, chiefly in nucleoside di- and triphosphates. They may liberate either a mono- or diphosphate.
ALAD	(Delta) Δ - Aminolevulinic Acid Dehydrogenase	
ALAS	(Gamma) Γ-ala Synthetase	
ALDH	Aldehyde dehydrogenase (ALDH)	An enzyme that catalyzes the conversion of an aldehyde to its corresponding acid.
ALDO	Aldolase	An enzyme in anaerobic glycolysis that catalyzes the cleavage of fructose 1,6-diphosphate to glyceraldehyde 3-phosphate.
ALIE	Ali esterase	Ali esterase also known as carboxylesterase which catalyzes a carboxylic ester to yield an alcohol and carboxylic acid anion; has wide specificity; also hydrolyzes vitamin a esters; can be used to separate stereoisomers; consider also esterase b which is a serine protease.
ALLN	Allantoinase Activity	
ALPH	Alkaline Phosphatase	
AMYL	Alpha-amylase	
ANAE	A-naphthyl Acetate Esterase	
APND	Aminopyrine N-demethylase	
APRT	Acid Protease	Any of many protein-hydrolyzing enzymes that work best in an acidic solution (usually in a pH range of 2-6). Such proteases include the stomach enzymes pepsin and rennin
APYR	Acid pyrophosphatase	A group of enzymes within the class EC 3.6.1.- that catalyze the hydrolysis of diphosphate bonds, chiefly in nucleoside di- and triphosphates. They may liberate either a mono- or diphosphate.

ENZ ENZYME EFFECT		
ARMT	Aromatase	An enzyme which converts androgens to estrogens by desaturating ring a of the steroid. This enzyme complex is located in the endoplasmic reticulum of estrogen-producing cells including ovaries, placenta, testicular sertoli and leydig cells, adipose, and b
ASAT	Aspartate Aminotransferase	
ASOA	Ascorbic Acid Oxidase Activity	A copper containing enzyme found in higher plants where it catalyses the reversible oxidation of ascorbate to 2-dehydro-ascorbate acid with the concomitant reduction of molecular oxygen to water (http://www.cordis.lu/tmr/src/grants/fair/975021.htm).
ATPA	Adenosine Triphosphatase	
ATRP	Alanine Transpeptidase	
B5P4	b5/P-450	
BAPH	Benzo(a)pyrene Hydroxylase	
BAPM	Benzo(a)pyrene monooxygenase	An enzyme that catalyses the incorporation of one oxygen atom of molecular oxygen into benzo(a)pyrene.
BCHE	Buterylcholinester ase	
BCOD	Butoxycoumurin O-dealkylase	
BGAL	(Beta) B-galactosidase	
<BHXA>	Benzpyrene Hydroxylase	
BPND	Benzphetamine-n-demethylase	
BROD	Benzylresorufin O-deethylase	
CAAH	Carbonic Anhydrase	
CACA	Choline Acetyltransferase	
CATP	Calcium ATPase	

ENZ ENZYME EFFECT		
CCAT	Calcium Carbonate ATPase	
CCOX	Cytochrome C-oxidase	
CEST	Cholinesterase	An enzyme found in blood and in various other tissues that catalyzes hydrolysis of choline esters, including acetylcholine.
CHIT	Chitobiase	One of the lysosomal glycosidases called Chitobiase belongs to a special family of proteins that hydrolyze the polysaccharide chitin
CP1A	Cytochrome P1A (CYP1A)	Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; P1A = pigment 1A
CRKI	Creatine Kinase	An enzyme of vertebrate skeletal and myocardial muscle that catalyzes the transfer of a high-energy phosphate group from phosphocreatinine to adenosinediphosphate with the formation of adenosinetriphosphate and creatinine.
CSYN	Citrate synthase	An enzyme of the lyase class that catalyzes the condensation of oxaloacetate and the acetyl group of coenzyme a to form of citrate and coenzyme a. This is the initial reaction in the tricarboxylic acid cycle.
CTLS	Catalase	An enzyme that catalyzes the decomposition of hydrogen peroxide into molecular oxygen and water.
CY2B	Cytochrome P2B (CYP2B)	One of the intracellular hemoprotein respiratory pigments that are enzymes functioning in electron transport as carriers of electrons (
CYB5	Cytochrome B-5	Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions
CYP2	Cytochrome P2	Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions
CYP3	Cytochrome P3A	Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions

ENZ ENZYME EFFECT		
CYST	Cysteine Dioxygenase	
DBHD	delta-5-3-beta hydroxysteroid dehydrogenase	Converts dehydroepiandrosterone to delta-4-androstene-3,17-dione
DHYD	NADPH Dehydrogenase	
DSCA	Diethylsuccinase	
DTDP	DT-diaphorase	Prevents the redox cycling of certain compounds
ECOD	Ethoxycoumurin O-deethylase	
ENCL	Endocellulase	An enzyme that is able to break beta 1-4 bonds randomly along a cellulose strand
ENDM	Ethylmorphine-n-demethylase	
EPHY	Epoxide Hydrase	
EROD	7-Ethoxyresorufin O-deethylase	
ESTE	Esterase	Any group of enzymes that catalyze the synthesis and hydrolysis of esters.
EXCL	Exocellulase	An enzyme that is able to cleave the glucose molecules from the ends of cellulose strands
FDPA	Fructose-diphosphate Aldolase	
G6PD	Glucose-6-phosphate Dehydrogenase	
G6PT	Glucose-6-phosphatase	An enzyme that catalyzes the conversion of d-glucose 6-phosphate and water to d-glucose and orthophosphate.
GENZ	Enzyme, General	Change in enzyme activity or enzyme protein levels.
GGTP	gamma-glutamyl transpeptidase	An enzyme contained in the liver that plays a role in metabolism.

ENZ ENZYME EFFECT		
GGTR	(Gamma) Γ-glutamyl Transferase*	
GLAD	Glutamic Acid Dehydrogenase	
GLMD	Glutamate Dehydrogenase	
GLMS	Glutamine Synthetase	An enzyme which catalyzes the formation of glutamine from glutamic acid and ammonia, using ATP as a source of energy.
GLMT	Glutamate transferase	
GLPX	Glutathione Peroxidase	Glutathione peroxidase catalyzes the reduction of various organic hydroperoxides, as well as hydrogen peroxide, with glutathione as hydrogen donor
GLRE	Gluthione Reductase	
GLTR	Glucuronyl Transferase	
GLUR	(Beta) B-glucoronidase	
GLYD	Glyceraldehyde Dehydrogenase	
GOTR	Glutamic-oxaloacetic Transaminase	
GPIM	Glucose phosphate isomerase	An enzyme that converts glucose-6-phosphate to its positional isomer glucose-1-phosphate
GPTR	Glutamic Pyruvic Transaminase	
GSTR	Glutathione S-transferase	

* GGT is also used for gamma glutamyl transpeptadase, a liver enzyme; prior to using the GGTR code verify that indeed GGT is used as the transferase in the current publication. The gamma glutamyl transpeptadase code is GGTP (proposed code).

ENZ ENZYME EFFECT		
GTPD	Glutamyl transpeptadase	A membrane-bound glycoprotein necessary for the formation of mercapturic acids from glutathione congugates, This enzyme has a number of acceptor amino acids and catalyzes three reactions.
GUPX	Guaiacol Peroxidase	Plant peroxidase. Guaiacol peroxidases have also been found in sterile root exudates and shown to oxidize Mn2+ to form Mn3+ chelates that are capable of decolorizing aromatic dyes. (http://lbewww.epfl.ch/COST837/PhytoRemed2000_Files/Session2.pdf) Peroxidase is commonly assayed by noting the development of color (A470) during the oxidation of a simple phenolic compound, guaiacol (ortho-methoxyphenol). For every four molecules of H2O2 that are reduced, one molecule of tetraguaiacol is formed (http://www-plb.ucdavis.edu/courses/s99/plb111l/Enzymes.html).
HEPX	Heptachlor epoxidase	
HPSE	Hydrogen Peroxidase	
HXBH	Hexobarbital Hydroxylase	
HXKN	Hexokinase	Enzyme responsible for glucose phosphorolation to glucose-6-phosphate
ICDH	Isocitrate dehydrogenase	
LADH	Lactate Dehydrogenase	
LDMD	Lactate Dehydrogenase/malic Dehydrogenase Ratio	
LIPS	Lipase	Any of many enzymes that help break down lipids by catalyzing the fraction of an ester linkage
LYZM	Lysozyme activity	Enzyme found in the secretions (tears) of the lacrimal glands of animals and in nasal mucus, gastric secretions, and egg white. Discovered in 1921 by Sir Alexander Fleming, lysozyme catalyzes the breakdown of certain carbohydrates found in the cell walls of certain bacteria (*e.g.,* cocci). It thus functions, in the case of lacrimal fluid**...**" name=tag>

ENZ ENZYME EFFECT		
MADH	Malic Dehydrogenase	
MALE	Malic Enzyme	
MAOA	Mono Amino Oxidase	
MCAT	Magnesium Carbonate ATPase	
MCOD	Methoxycoumarin O-dealkylase	
MG6P	Microsomal Glucose 6-phosphatase	
MGAT	Maganesium ATPase	
MLCB	Malathion Carboxylesterase	
MNSD	Manganese Superoxide Dismutase	
MROD	Methoxyresorufin-o-deethylase	
MUDH	Multiple Dehydrogenases (Measured Total Produced by Soil Microorganisms)	
NABH	N-acetyl-beta-hexosaminidase	
NAAT	Sodium adenosine triphosphatase	
NACR	NADH-cyt c reductase	Nicotinamide adenine dineucleotide cytochrome C reductase
NADH	Nicotinamide adinine dinucleotide (reduced) (NADH)	Activated form of the B vitamin niacin, the first of 5 enzyme complexes of the elctron transport chain

ENZ ENZYME EFFECT		
NADN	Nicotinamide adinine dinucleotide (oxidized) (NAD)	The oxidized (burned) coenzyme form of Vitamin B3
NCB5	NADH cytochrome B5 reductase	Electron transport proteins found in animals, plants and yeasts.
NCCR	NADPH Cytochrome C Reductase	Nicotinamide adenine dineucleotide phosphate cytochrome C reductase
NDCC	NADH Cytochrome C Reductase	Nicotinamide adenine dineucleotide cytochrome C reductase
NDDP	NADH-DT-diaphorase	
NDFH	NADPH-ferrihemoprotein reductase	
NDFR	NADH Ferrichrome Reductase	Nicotinamide adenine dineucleotide ferrichrome reductase
NDPD	NADPH-Diaphorase (Nicotinamide Adenine Dinucleotide phosphate Diaphorase)	
NHCR	NADH cytochrome C reductase	
NITG	Nitrogenase Activity	
NKAT	Sodium Potassium ATPase	
NRDT	Nitrate Reductase	
ORCT	Ornithine Carbamoyl Transferase	

ENZ ENZYME EFFECT		
P420	Cytochrome P-420	Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions.
P450	Cytochrome P-450	Isoenzyme, Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; P450 - 450 nm maximum absorption - found in the liver envoplasmic reticular, the renal brush border the the outer membrane of the adrenal mitochondria; serves as an intermediate electron carrier in reactions catalyzed by some monoxygenases; active in detoxification of xenobiotics by activating the molecular oxygen for an attack on the substrate
PBES	Phenyl Benzoate Esterase	
PBHD	Pentobarbital Hydroxylase	
PCOD	Propoxycoumarin O-dealkylase	
PFRC	Phosphofructokinase	An enzyme that functions in carbohydrate metabolism and especially in glycolysis by catalyzing the transfer of a second phosphate (as from ATP) to fructose
PHLA	Phosphorylase A	Phosphorylase - An enzyme that catalyzes the formation of glucose-1-phosphate from glycogen and inorganic phosphate.
PHLD	Phenoloxidase	
PNAC	para-Nitrophenyl Acetate Carboxylasterase	
PNAD	P-nitroanisole Demethylase	
PNOD	para-Nitrophenetole-o-deethylase	
PODA	Peroxidase (Pod) Enzyme Activity	An enzyme that catalyzes reactions in which hydrogen peroxide is an electron acceptor.

ENZ ENZYME EFFECT		
PPOX	Polyphenol oxidase	Catechol oxidase - any group of enzymes of the oxidoreductase class that catalyze the oxidation of catechols to 1,2-benzoquinones. The group includes enzymes called also diphenol oxidase or polyphenol oxidase, based on their substrates (Dorlands).
PPPC	Phosphoenol pyruvate carboxylase	An enzyme with high affinity for carbon dioxide. It catalyzes irreversibly the formation of oxaloacetate from phosphoenolpyruvate and carbon dioxide. This fixation of carbon dioxide in several bacteria and some plants is the first step in the biosynthesis of glucose.
PROD	Pentylresorufin O-deethylase	
PRTA	Proteolytic activity	An enzyme that promotes proteolysis (= the splitting of proteins by hydrolysis of the peptide bonds with formation of smaller polypeptides).
PRTS	Protease	An enzyme that digests proteins
PYKN	Pyruvate kinase	A phosphotransferase that catalyzes reversibly the phosphorylation of pyruvate to phosphoenolpyruvate in the presence of ATP. It has four isozymes (l, r, m1, and m2).
RBPC	Ribulose-1,5-bisphosphate carboxylase	A copper protein that catalyzes the formation of 2 moles of 3-phosphoglycerate from ribulose 1,5-biphosphate in the presence of carbon dioxide and is responsible for carbon dioxide fixation in photosynthesis.
RNSE	RNase	An enzyme that catalyzes the depolymerization of ribonucleic acid.
RUBI	Ribulose bisphosphate carboxylase/oxygenase (Rubisco)	A rate regulating-enzyme in photosynthesis and a key enzyme in nitrogen metabolism (http://www.irri.org/IRRN24-1Minireviews.pdf).
SBDH	Sorbitol Dehydrogenase	
SCDH	Succinate Dehydrogenase	
SGOT	Serum Glutamate Oxalo Acetate Transaminase	
SGPT	Serum Glutamic Pyruvic Transaminase	
SODA	Super Oxide Dismutase (Sod) Enzyme Activity	

ENZ ENZYME EFFECT		
TAMN	Transaminase	One of a group of enzymes that catalize the transfer of the aminogroup of an amino acid to a keto acid to form another amino acid. Also known as aminotransferase.
THTR	Thiol Transferase	
TPHX	Tryptophan hydroxylase	Tryptophan hydroxylase (TPH) is the rate-limiting enzyme in the biosynthesis of serotonin and an important component of melatonin biosynthesis.
TRBA	Tributyrinase	
TRIE	Triacetin Esterase	
TTRH	Testosterone hydroxylase	An enzyme that acts at positions 6 alpha, 7 alpha and 16 alpha of testosterone
UDPT	Uridine Diphosphate (Udp) Glucuronyl Transferase	
URSE	Urease Activity	
XBME	Xenobiotic metabolizing enzymes	Enzymes that metabolize synthetic compounds not normally found in nature. Examples of xenobiotic compounds include; pesticides, herbicides, insecticides, fungicides, detergents, plastics and other synthetic polymers.
XODA	Xanthine Oxidase	

HRM HORMONE EFFECT		
Measurement Code	**Measurement Name**	**Measurement Definition**
ABSA	Abscisic Acid	A common plant hormone that inhibits plant growth
ACTH	Adrenocorticotropic hormone	A hormone that stimulates adrenal steroid biosynthesis.
ANDR	Androgen	Substances that conduces masculinization; such as testicular hormones
AUXN	Auxin	A plant hormone
CORT	Corticosterone	A steroid produced by the adrenal cortex that stimulates carbohydrate synthesis and protein breakdown.
CRTS	Cortisol	Cortisol is a steroid hormone that is released from the zona fasciculata of the adrenal cortex in response to stress.

HRM HORMONE EFFECT		
CTCL	Catecholamine	A type of biogenic amine derived from tyramine, characterised as alkylamino derivatives of o dihydroxybenzene. Catecholamines include adrenaline, noradrenaline and dopamine, with roles as hormones and neurotransmitters.
CYTK	Cytokinin	Class of plant hormones that induce cell division
DITS	Diiodotyrosine	One of the hormones that are combined to create T3 (triiodotyrosine), Diiodotyrosine (DIT); tyrosine is iodinated twice.
DOPA	Dopamine	A monoamine formed in the body; an intermediate product in the synthesis of norepinephrine, acts as a neurotransmitter in the CNS
EPIN	Epinephirine	Secreted by the adrenal medulla and acts to increase blood pressure due to the stimulation of heart action and constriction of blood vessels (adrenaline)
ESDL	17-beta Estradiol	An estrogenic hormone produced by follicle cells of the ovary; provokes estrus and proliferation of the human endometrium.
ESTR	Estrogen	Any of various natural or synthetic substances possessing the biological activity of estrus-producing hormones.
FOSH	Follicle stimulating hormone (FSH)	One of the most important hormones involved in the natural menstrual cycle as well as in pharmacological (drug-induced) stimulation of the ovaries. It is the main hormone involved in producing mature eggs.
GHRM	Hormone, General Changes in	Change in hormone concentrations.
GIBB	Gibberellin	A plant hormone
GNTP	Gonadotropin	A substance that acts to stimulate the gonads.
GTHH	Growth hormone	A polypeptide hormone secreted by the anterior pituitary which promotes an increase in body size. Any hormone that regulates growth in plants and animals.
KTST	11-Ketotestosterone	Steroid hormone produced by the testes, along with testosterone responsible for the appearance of male secondary sex characteristics.
LUTH	Luteinizing hormone (LH)	stimulates secretion of sex steroids from the gonads
ME4T	Total 4a-Methylsterols	Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility
MITS	Monoiodotyrosine	One of the hormones that are combined to create T3 (triiodotyrosine), Monoiodotyrosine (MIT); tyrosine becomes iodinated.

HRM HORMONE EFFECT		
NORE	Norepinephrine	Secreted by chromaffin cells of the adrenal medulla; acts as a vasoconstrictor and mediates transmission of sympathetic nerve impulses.
PRLC	Prolactin	A protein hormone produced by the adenohypophysis; stimulates lactation and promotes functional activity of the corpus luteum.
PRGS	Progesterone	A steroid produced in the corpus luteum, placenta, testes, and adrenals; plays an important physiological role in the luteal phase of the menstrual cycle and in the maitenance of pregnancy.
SRTN	Serotonin	A vasoconstrictor, serves as a central neurotransmitter, also called 5-Hydroxytryptamine
ST5T	Total (Delta)5-sterols	Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility
ST8T	Total (Delta)8-sterols	Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility
THYR	Thyroxine	(T4) an iodine-containing hormone C15H11I4NO4 that is an amino acid produced by the thyroid gland as a product of the cleavage of thyroglobulin, increases metabolic rate.
TRII	Triidothyronine	(T3) an iodine-containing hormone C15H12I3NO4 that is an amino acid derived from thyroxine , the more active form of thyroid hormone which crosses cell membranes to exert an effect on metabolic rates within an organism.
TSHT	Thyrotropin	Thyrotropin or thyroid-stimulating hormone (TSH), is a hormone released by the anterior pituitary gland that stimulates the thyroid gland to release thyroxine.
TSTR	Testosterone	A steroid hormone which is necessary for male sexual reproduction and may also play a role in female sexual response. It is responsible for such male secondary sexual characteristics as body hair. In males, is produced in the Leydig cells of the testes; in both sexes, it is produced in smaller quantities by the adrenal glands.

GRO GROWTH[1] GROUP

DVP DEVELOPMENT EFFECT

Measurement Code	Measurement Name	Measurement Definition
68CL	6-8 Cell stage	Cleavage stage during embryonic development which contains 6-8 cells.
ABNM	Abnormal	ECOTOX makes every effort to code the specific abnormalities (e.g. imposex, limb deformities , lesions, etc.), but when an author does not clearly state the specific type of abnormality or combines multiple types of abnormalities into one data point DVP ABNM is used.
BSCY	Blastocyst stage	an early metazoan embryo typically having the form of a hollow fluid-filled rounded cavity bounded by a single layer of cells
CCLV	Cell Cleavage	
COLR	Color	
DFRM	Deformation/ Malformations	A physical blemish or distortion
DVLP	Slowed, Retarded, Delayed or Non-development	
EMRG	Emergence	Change in the emergence from larval stage into the adult stage.
ENDD	Endoderm Differentiation	
EVFO	Envelope Formation	
FIRM	Firmness	
FLDG	Fledged/Female or /Brood	
FORM	Organ/Tissue Formation	
GDVP	Development, General	Change in ability to grow to a more mature life stage and in time between separate life stages; Used when more than one measurement is coded for an AQUIRE record.
GRRT	Growth Rate	
GSTL	Gastrulation	
LRCF	Loricae formation	Tintinnid ciliates form stiff, vase-shaped or barrel-shaped coverings called loricae, around themselves.

DVP DEVELOPMENT EFFECT		
MATR	Maturation	The process of coming to full development.
MMPH	Metamorphosis	A marked structural change in an animal during postembryonic development.
MOLT	Molting	To shed an outer covering as part of periodic process of growth.
MRLA	Morula stage	a globular solid mass of blastomeres formed by cleavage of a zygote that typically precedes the blastula
NORM	Normal	
PHRN	Post Harvest Character No Effect	
PHRV	Post Harvest Character Influenced	
PUPA	Pupation	Change in percent pupation or pupation duration.
RSPN	Resorption (Tail Resorption in Frogs)	
SXDP	Sexual Development	
TEMR	Time to First Emergence	
TERA	Teratogenesis	Use this code when exposure of adults results in quantifiable occurrence of abnormal offspring.
TFLW	Time to Flower	
THED	Time to heading	The time it take for grain to reach maturity.
TRRA	Transformation Ratio	(Weight of Roots + Sprouts/weight of Original Seed)
WEAN	Weaned	
WGHT	Weight	The heaviness of an object.

GRO GROWTH EFFECT

Measurement Code	Measurement Name	Measurement Definition
<ABNM>	Abnormal	DO not code GRO ABNM. ABNM should be coded under MPH (when adult body structures are changing) or DVP (when embryo or juveniles are becoming abnormal throughout different lifestages)
<AREA>	Area	
BMAS	Biomass	Includes harvest yield, fruit or seed yield, mass of organism, mass of population, standing crop, productivity.
<BDBN>	Body Burden	This will need maintenence. If the measurement occurs with and endpoint than the measurement should change to EBCN.
COND	Condition Index	
DNSY	Density	
DMTR	Diameter	
DIST	Distance grown	
DWGT	Dry Weight (AQUIRE Only)	Measurable change in dry weight of test organism.
EBCN	Effective Body Concentration	The body residue of a chemical that is associated with an effect.
GGRO	Growth, General	Used when more than one measurement is coded for an AQUIRE record.
<GGRT>	Growth Rate Index	
GREI	Growth Efficiency Index	
HGHT	Height	Measurable change in height of test organism.
LGTH	Length	Measurable change in length of test organism.
LINT	Lint	A fibrous coat of thick convoluted hairs borne by cotton seeds that yields the cotton staple (MW online).
NLEF	Number of leaves	Number of leaves found on a plant.
NNOD	Dry Mass/Plant Roots Not Nodulated	

GRO GROWTH EFFECT		
NODE	# Nodules/nodulated Plant Roots	
PMTR	Perimeter	
RADI	Radius	A line segment extending from the center of a circle or sphere to the circumference or bounding surface.
RGNR	Limb/ Body Part Regeneration	Change in ability to regenerate a body part, byssus production.
RLGR	Relative Growth Rate	The size increase per unit interval of time.
SIZE	Size	The physical magnitude, extent, or bulk **:** relative or proportionate dimensions .
SPGR	Specific Growth Rate	Individual growth measurement calculated by using the net weight divided by time, also relative growth rate.
STNT	Stunting	
THIK	Thickness	Having or being of relatively great depth or extent from one surface to its opposite
THRV	Time to harvest	
WDTH	Width	Measurable change in width of test organism.
WGHT	Weight	Measurable change in weight of test organism.
WWGT	Wet Weight (AQUIRE Only)	Measurable change in the wet weight of an organism.
VOLU	Volume	The amount of space occupied by a three-dimensional object as measured in cubic units (as quarts or liters) **:** cubic capacity

MPH MORPHOLOGY EFFECT		
Measurement Code	**Measurement Name**	**Measurement Definition**
ABNM	Abnormal	*Use this effect-measurement combination when adult body structures are becoming abnormal.*
COSC	Caudal Ossification Center	

MPH MORPHOLOGY EFFECT		
DEPO	Shell Deposition	Change in the ability to grow a shell.
GMPH	General Morphological Changes	Used when more than one measurement is coded for an AQUIRE record.
IMPS	Imposex, Intersex Conditions	
IPOS	Inter-parietal Ossification	The formation of bone or of a bony substance, the conversion of fibrous tissue or of cartilage into bone or a bony substance between the parietal bones or cartilages (Graylab on-line medical dictionary).
LGTH	Length	
MOSC	Metacarpal Ossification Center	
PULP	Pulp	The soft succulent portion of a fruit. (McGraw-Hill,1994)
POSC	Parietal Ossification	The formation of bone or of a bony substance, the conversion of fibrous tissue or of cartilage into bone or a bony substance located near the parietal bone (Graylab on-line medical dictionary).
SHPE	Change in Shape	
SMIX	Somatic Index	Organ Weight in Relationship to Body Weight
SOSC	Sternal Ossification Center	
SRIB	Supernumerary Ribs	
STBD	Seminiferous tubule diameter	The diameter of any of the coiled threadlike tubules that make up the bulk of the testis and are lined with a layer of epithelial cells from which the spermatozoa are produced.
STRC	Structural Changes	
STTO	Strength and Tone	
VOLU	Volume	The amount of space occupied by a three-dimensional object as measured in cubic units (as quarts or liters) : cubic capacity
WGHT	Weight	The heaviness of an object.

CEL CELLULAR GROUP

CEL CELLULAR EFFECT

Measurement Code	Measurement Name	Measurement Definition
AGGR	Aggregation/ Adhesion	
ARGY	Argyrophilic cells	An enteroendocrine cell
BASO	Basophil	A structure, cell or other histologic element staining readily with basic dyes; a granular leukocyte with an irregular shaped, relatively pale-staining nucleus that is partially constricuted into 2 lobes; also called basophilic leukocytes; a beta cell of the adenohypophysis - see also gonadotroph and thyrotroph
CCHG	Cell Changes	Cytology, change in organelle structure, cell size or cell volume (do not use GRO), phagocytosis. For algae, use for change in optical density, location of pigments, cell shape, size. Another example of where it might be appropriate to initiate use of a morph code. Used when more than one measurement is coded for an AQUIRE record.
CDRT	Cell division rate	Cell division = The process by which living cells multiply; may be mitotic or amitotic. (McGraw-Hill, 1994)
CILR	Ciliated Type II Receptors	
CLCE	Chloride Cell	
CTRV	Cell Turnover	
CYTO	Cytotoxicity	
DEND	Dendrite Receptors	
DIVC	Dividing Cells	
DNSY	Density	
EOSN	Eosinophil	A structure, cell or histologic element readily stained by eosin, especially a granular leukocyte with a nucleus that usually has two lobes connected by chromatin.
ERTH	Erythoroblasts	Any type of nucleated erthrocyte, also desgnating an immature cell from which a red corpuscle develops.
GBLT	Goblet Cells	A unicellular, mucus-secreting intra-epithelial gland that is distended on the free surface. Also known as Chalice cell.
GLCL	Gland Cells	

CEL CELLULAR EFFECT		
GRAN	Granulocyte	Any cell containing granules, especially a leukocyte containing neurtrophil, basophil, or eosinophil granules in its cytoplasm
HTCY	Heterocyst frequency	Specialized cell type found at regular intervals along the filaments of certain Cyanobacteria, site of nitrogen fixation.
LEUK	Leukocytes	White blood cell
LMPH	Lymphocyte	Any of the mononuclear , nonphagocytic leukocytes found in the blood, lymph and lympoid tissues.
MONO	Monocyte	A large, agranulated leukocyte with a relatively small, eccentric, oval or kidney-shaped nucleus.
NCEL	Number/Frequency of Cells	
NEUT	Neutrophil	A large granular leukocyte with a highly variable nucleus, consisting of three to five lobes, and cytoplasmic granules which stain with neutral dyes and eosin.
OGNL	Organelle	A specialized subcellular structure, such as a mitochondrion, having a special function.
OSRS	Osmotic Resistance/RBC	
PLAS	Plasmolysis	Contraction or shrinking of the protoplams of a plant cell due to the loss of water by osmotic action
RBCE	Red Blood Cell	Erythrocyte - found in peripheral blood
RETI	Reticulocytes	A young red blood cell showing a basophilic reticulum under vital staining
RSBC	Receptor site, binding capacity	
SGDN	Signal Density	
SPLO	Splenocytes	The monocyte characteristic of the spleen
STRC	Structural Changes	
THRM	Thrombocytes	A blood platelet
TWBC	White Blood Cell Count, Total	Measure of total WBC
UBWB	White Blood Cell, Undifferentiated Blasts	Absence of normal differentiation of white blood cell blasts

GEN GENETIC EFFECT

Measurement Code	Measurement Name	Measurement Definition
APOP	Apoptosis, Programmed Cell Death, DNA Fragmentation	
BRAK	Chromosomal breaks	Chromosome breakage - A type of chromosomal aberration which may result from spontaneous or induced breakage. Alkylating agents, various types of irradiation, and chemical mutagens have been found to cause induced chromosomal breakage. Breakage can induce base pair translocations, deletions, or chromatid breakage
CABR	Chromosomal aberrations	Modification of the normal chromosome complement due to deletion, duplication, or rearrangement of genetic material.
CHLM	Chlorophyll Mutation/Albino Mutants	Mutation: a change in form, quality or some other characteristic; in genetics - a permanent transmissible change in the genetic mateiral
CPRN	Cytochrome P1A Messenger RNA	
DAMG	Damage	
DNAB	DNA binding	DNA binding to chemical
DNAC	DNA Concentration	
DNAS	DNA Synthesis Rate	
EMRN	Estrogen mRNA	mRNA (messenger RNA) is the mediating template between DNA and proteins. Estrogen - Any of various natural or synthetic substances possessing the biological activity of estrus-producing hormones.
G1PN	G1 Phase Nuclei	
GEXP	Gene Expression	
GGEN	Genetics, General	Changes in the genetic processes of cell (e.g. RNA, DNA).
GTPF	Genotype Frequencies	
LEPT	Leptotene	a stage of meiotic prophase immediately preceding synapsis in which the chromosomes appear as fine discrete threads

GEN GENETIC EFFECT		
ME1A	Meiotic Abnormalities, 1st Anaphase	
ME1M	Meiotic Abnormalities, 1st Metaphase	
ME2A	Meiotic Abnormalities, 2nd Anaphase	
ME2M	Meiotic Abnormalities, 2nd Metaphase	
MEDM	Meiotic Abnormalities, Diakinesis and 1st Metaphase	
MEIA	Meiotic Abnormalities, General	
MEIR	Meiosis Rate	
MIAT	Mitotic Abnormalities, Ana-telophase	
MIBC	Mitotic Abnormalities, Binucleate Cell	
MIBG	Mitotic Abnormalities, Bridge	
MICL	Mitotic Abnormalities, Clumping	
MICY	Mitotic Abnormalities, Cytomixis	
MIES	Mitotic Abnormalities, Early Separation	

GEN GENETIC EFFECT		
MIEX	Mitotic Abnormalities, Exclusion	
MIFR	Mitotic Abnormalities, Fragment	
MIIN	Mitotic Abnormalities, Interphase Cells	
MILG	Mitotic Abnormalities, Laggard	
MIMN	Mitotic Abnormalities, Micronuclei	
MIMT	Mitotic Abnormalities, Metaphase	
MINB	Mitotic Abnormalities, Nuclear Budding	
MINF	Mitotic Abnormalities, Nuclear Fusion	
MIPO	Mitotic Abnormalities, Disturbed Polarity	
MIPR	Mitotic Abnormalities, Prophase	
MISK	Mitotic Abnormalities, Stickiness	
MITA	Mitotic Abnormalities, General	
MITI	Mitotic Index (#Mitoses/Total Cells)	

GEN GENETIC EFFECT		
MITR	Mitotic Rate	
MRNA	Messenger RNA	mRNA (messenger RNA) is the mediating template between DNA and proteins.
MMRN	Metallothionein mRNA	
MNUC	Micronuclei Increase	
MUTA	Mutation	Mutation: a change in form, quality or some other characteristic; in genetics - a permanent transmissible change in the genetic material
NABN	Nuclear Abnormalities	
NCPF	Nuclear phase frequency	Number of phases that a cell goes through during cell division
PACH	Pachytene	the stage of meiotic prophase that immediately follows the zygotene and that is characterized by paired chromosomes thickened and visibly divided into chromatids and by the occurrence of crossing-over
POLY	Chromosomal Polyploidy	Polyploidy: the state of having more than two full sets of homologous chromosomes
RASO	Ras Oncogene mutation	A gene that causes cancer in an animal. The gene specifies the structure of an enzyme that catalzes events that can induce cancerous growth. (McGraw-Hill,1994.) Ras is a protein found in chromosomes and when mutated it is permenently switched on telling the cell to grow regardless of whether the receptors on the cell surface are activated or not.
RNAC	RNA Concentration	
RNAS	RNA Synthesis Rate	
RNDN	RNA to DNA Ratio	
SEXE	Sex Expression Change	
TSLE	Translocation Efficiency	
VMRN	Vitellogenin Messenger RNA	
ZYGO	Zygotene	the stage of meiotic prophase which immediately follows the leptotene and during which synapsis of homologous chromosomes occurs

HIS HISTOLOGY EFFECT

Measurement Code	Measurement Name	Measurement Definition
ACAP	Arterial Cuff Atrophy	Arterial - pertaining to an artery or to the arteries. (Dorlands) Cuff - A small bandlike structure encircling a part. (Dorlands) Atrophy - a wasting away; a diminution in the size of a cell, tissue, or organ (Dorlands).
ALYS	Autolysis	Self-digestion by body cells following somatic or organ death or ischemic injury.
ANSK	Anisokaryosis	Inequality in the size of the nuclei of cells (Dorlands).
ARTS	Arteriosclerosis	A degenerative arterial disease marked by hardening and thickening of the vessel walls.
ASCT	Ascites	Accumulation of serous fluid in the spaces between tissues and organs in the cavity of the abdomen (Webster's).
ASLT	Alpha Islets	Alpha cell, pancreatic: A type of cell in the pancreas, within the pancreas, the alpha cells are located in areas called the islets of Langerhans. Alpha cells make and release glucagon which raises the level of glucose (sugar) in the blood.
ATRS	Atresia	Imperforation or closure of a natural orifice or passage of the body.
ATPH	Atrophy	Diminution in the size of a cell, tissue,or organ that was once fully developed of normal size.
BSLT	Beta Islets	Beta cell, pancreatic: A type of cell in the pancreas. Within the pancreas, the beta cells are located in areas called the islets of Langerhans. They constitute the predominant type of cell in the islets. The beta cells are important because they make insulin. Degeneration of the beta cells is the main cause of type I (insulin-dependent) diabetes mellitus.
CLFL	Collapsed Follicles	Follicle - A sac or pouchlike depression or cavity. (Dorlands)
CLPG	Clumping Pigment Granules	
CSTD	Cestodiasis	Tapeworm infestation, infestation with cestodes, a group of flattened and tapelike hermaphroditic worms that are intestinal parasites in humans and other animals, producing larvae that may invade body tissues.
CTRT	Cataracts	A clouding of the lens of the eye or of its surrounding transparent membrane that obstructs the passage of light. http://www.m-w.com/cgi-bin/dictionary

HIS HISTOLOGY EFFECT		
CTYP	Percent Cell Type	
CYIN	Cytoplasmic Inclusions	A foreign substance, either liquid or solid, usually of minute size, inclosed in the mass of a the cytoplasm (Graylab on-line medical dictionary)
CYVC	Cytoplasmic Vacuoles	Spaces or cavities within the cytoplasm.
DEGN	Degeneration	Deterioration of cellular integrity with no sign of response to injury or disease.
DISO	Cellular Disorganization	
EDMA	Edema	An excessive accumulation of fluid in the cells, tissue spaces, or body cavities due to a disturbance in the fluid exchange mechanism.
EHYP	Erythroid Hyperplasia	The abnormal multiplication or increase in the number of normal cells in normal arrangement in the erythroid (Graylab on-line medical dictionary).
ENDR	Endarteritis	Inflammation of the inner lining of an artery.
ESPH	Esophagitis	Inflammation of the esophagus.
FBRS	Fibrosis	A condition marked by increase of interstitial fibrous tissue (MW online).
GHIS	Histological Changes, General	Presence of physical damage or change to tissues or cells (for example, lesions, neoplasms); gross histological effects such as whole plant injury; disintegration of roots, stems or leaves; root fragmentation. For animals such effects include cell sloughing. The specifics of the histology effect will be reported in EE_Remarks for AQUIRE or the Result Remarks for TERRETOX. Used when more than one measurement is coded for an ECOTOX record.
GLSN	Gross Lesions	
HEMR	Hemorrhage	Change or presence of hemorrhaging.
HYCE	Hypocellularity	
HYCR	Hyperchromicity	An increase in the optical density of a solution with nucleic acids in it such that it is able to absorb more ultraviolet radiation, which occurs when the double-stranded nucleic acid molecules denature into single-stranded molecules (Graylab on-line medical dictionary).
HYDS	Hydropic Swelling	

HIS HISTOLOGY EFFECT		
HYPL	Hyperplasia	Increase in cell number causing an increase in in the size of a tissue or organ.
HYPT	Hypertrophy	Increase in cell size causing an increase in the size of an organ or tissue.
IHGT	Increased Height	Increase in height of an object such a cells or cellular components.
IMVL	Increased Medullary Volume	Medullary - pertaining to the marrow or to any medulla. Medulla - The inmost part. A general term for the most interior portion of an organ or structure. Called also marrow. (Dorlands)
IPDY	Increased Portal Density	Portal: Of or pertaining to a porta, especially the porta of the liver; as, the portal vein, which enters the liver at the porta, and divides into capillaries after the manner of an artery. (http://www.graylab.ac.uk/cgi-bin/omd?portal)
IPHM	Increased Perivenous Homogeneity	Perivenous - around the vein. (Dorlands)
LESI	Lesions	A structural or functional alteration due to injury or disease.
MELM	Melanomacrophages	
MHYP	Myeloid Hyperplasia	The abnormal multiplication or increase in the number of normal cells in normal arrangement in myeloid (Graylab on-line medical dictionary)
MYOP	Myopathy	disorder of muscle tissue or muscles
NCRL	Necrotic Lesions	
NCRO	Necrosis	Death of a cell or group of cells as a result of injury, disease, or other pathologic state.
NCVS	Nuclear Vesiculation	Vesiculation -the prescence or formation of vesicles. (Dorlands) Nuclear - Of or pertaining to a nucleus; as, the nuclear spindle or the nuclear fibrils of a cell; the nuclear part of a comet, etc (http://www.graylab.ac.uk/cgi-bin/omd?nuclear).
NPHG	Nephrogenesis	development or growth of the kidney.
NPHR	Nephrosis	Degenerative or retrogressive renal lesions, distinct from inflammation (nephritis) or vascular involvement (nephrosclerosis), especially as applied to tubular lesions.
PRLF	Proliferation	
PRVN	Proventriculitis	Inflammation of the glandular first portion of the stomach of birds, in which food from the crop (crop, avian) is mixed with peptic enzymes and passed to the gizzard.

HIS HISTOLOGY EFFECT		
RCVL	Reduced Corticle Volume	Decrease in corticle volume.
RFSZ	Reduced Follicle Size	Decrease in follicle size.
RPCD	Reduced Periarteriolar Lymphocyte Sheath Cell Density	As an arteriole leaves a septum and enters the interior volume of the spleen it immediately acquires a continuous coating of lymphocytes. This "sleeve" of lymphocytes is the periarteriolar lymphocyte sheath, or PALS. (http://education.vetmed.vt.edu/Curriculum/VM8054/Labs/Lab13/Lab13.htm)
SCNG	Sinus Congestion	Blockage of one or more of the four pairs of sinus passageways in the skull. Blockage may result from inflammation and swelling of the nasal tissues, obstruction by one of the small bones of the nose (deviated septum) or from secretion of mucus (http://www.healthwell.com/healthnotes/Concern/Sinus_Congestion.cfm).
SHMT	Sinus Haematopoiesis	The formation and development of blood cells involving both proliferation and differentiation from stem cells in the sinus (Graylab on-line medical dictionary)
SHYP	Sinus Hyperplasia	The abnormal multiplication or increase in the number of normal cells in normal arrangement in the sinus (Graylab on-line medical dictionary)
SWEL	Swelling, Swollen	
TFLR	Tissue Damage Measured by Fluorescence under Dyes or in Uv Light	
USTR	Ultrastructural Changes	
VCLZ	Vacuolization	The process of forming vacuoles; the condition of being vacuolated.

MOR MORTALITY OR SURVIVORSHIP[2] GROUP		
MOR MORTALITY EFFECT		
Measurement Code	**Measurement Name**	**Measurement Definition**

MOR MORTALITY EFFECT		
GMOR	Mortality/Survival, General	Used when more than one measurement is coded for an AQUIRE record. (General mortality is a place holder for AQUIRE transfers)
HTCH	Hatch	Change in percent hatch, time to hatch or number of eggs hatched.
LBCN	Lethal Body Concentration	Also Lethal Body Burden. The body residue of a chemical that is associated with mortality. *Use this effect-measurement pair if the author reports an endpoint based on lethal body burden or lethal body concentration (internal chemical concentrations).*
LIFE	Life Expectancy	
LFSP	Lifespan or longevity	
MDTH	Mean Time of Death	
MORT	Mortality	Effect expressed as % death or % survival. A lethal effect may describe mortality (MOR) or an observed behavior that indicates mortality (e.g., shell valve closures for bivalves (SVC), immobilization (IMM) for invertebrates, or detachment (DET) for sessile organisms). "MOR" differs from "ABD" in that an initial number of organisms is known for the mortality effect and results are expressed in terms of the initial number (e.g., percent survival). If the author defines criteria used to determine that the organism was dead, and then identifies the effect as a lethal effect, "MOR" will be coded in the EFFECT field. MOR may be coded as an effect with either LC, EC, LD, NOEC, or LOEC endpoints.
SURV	Survival	
SVVS	Survivorship	Number alive at beginning of an age class from original cohort
TDTH	Time to Death	
TKNO	Knockdown	
TLET	Time to 100% Mortality	

PHY PHYSIOLOGICAL GROUP

IMM IMMUNITY EFFECT

Measurement Code	Measurement Name	Measurement Definition
ABDT	Antibody Titres	
ASHG	Anti-sheep Red Blood Cell Hemaglutinin	
DHYP	Delayed Type Hypersensitivity	
GIMM	Immunity, General	Used when more than one measurement is coded for an AQUIRE record.
HEAL	Healing	To make sound or whole [heal a wound]
HTPL	Heterophiles	An antibody raised against an antigen from one species that also reacts against antigens from other species.
LYMP	Lymphocyte Activity	
MPHG	Microphage Function, Activity	
NKCA	Natural Killer Cell Activity	
PARA	Amount or Percent Organisms Infested with Parasites	
PFCR	Plaque forming cell response	Plaque forming cell = An antibody-producing cell detected in vitro by its ability to lyse antigen-sensitized erythrocytes in the presence of complement. http://www.fleshandbones.com/immunology/roitt/glossary.cfm?letter=P
PHAG	Phagocytosis	A specialized form of macropinocytosis in which cells engulf large solid objects such as bacteria and deliver the internalized objects to special digesting vacuoles.
PRNF	Parasitic Infection	
RSTT	Rosette Response, Rosette Forming Cell Concentration	
THYM	Thymocyte Activity	

INJ INJURY EFFECT

Measurement Code	Measurement Name	Measurement Definition
CLRS	Chlorosis	A form of macrocytic anemia in young females characterized by marked reduction in hemoglobin and a greenish skin color. A disease condition of green plants seen as yellowing of green parts of the plant.
CURV	Curvature	
DAMG	Damage	
DESI	Desiccation	The permanent decrease or disappearance of water.
GINJ	Injury, General	Used when more than one measurement is coded for an AQUIRE record.
SYMP	Symptom Severity Index	
TUMR	Tumor Induction	
VASC	Vascular Disruption	

ITX INTOXIFICATION EFFECT

Measurement Code	Measurement Name	Measurement Definition
ANOR	Anorexia	Loss of appetite .
ATAX	Ataxia	Lack of muscular coordination due to any of several nervous system diseases.
CONV	Convulsions	An episode of involuntary, generally violent muscular contractions.
GITX	Intoxication, General	Used when more than one measurement is coded for an AQUIRE record.
IMBL	Immobile	Change in the failure to respond or lack of movement after mechanical stimulation.
INCO	Incoordination	
MBLT	Mobility	
PARL	Paralysis	Complete or partial loss of motor or sensory function.
TINT	Time to Signs of Intoxication	

PHY PHYSIOLOGICAL EFFECT

Measurement Code	Measurement Name	Measurement Definition
ABSC	Abscission	A physiological process promoted by abscisic acid whereby plants shed a part, such as a leaf, flower, seed, or fruit.
APCT	Aerobic Protein Catabolism	
ADPE	Adsorption Efficiency	
ADPO	Oxidative Phosphorylation	Conversion of inorganic phosphate to the energy-rich phosphate of adenosinetriphosphatase by reactions associated with the electron transfer system.
AECG	Abnormal ECG	electrocardiogram (ECG / EKG) is an electrical recording of the heart
AEXR	Ammonia Excretion	
ANBC	Aniline Binding Capability	
ASML	Assimilation Efficiency	Change in efficiency of trophic transfers between different levels in the food chain, e.g. between primary producers and grazers.
AVCD	AtrioVentricular conduction delay	Delays in conduction below the bifurcation of Bundle of His cause bundle branch or fascicular blocks, while atrioventricular conduction is maintained, unless all three fascicles are simultaneously affected. The causes are both intrinsic and extrinsic. However, since the AV node and bundle of His provide a special connection of the atria to the ventricles, focal injury from heart attacks, infections, catheter trauma, is common.
AXSS	Axis shift	Related to the mean electrical axis of an EKG. The mean electrical axis of the QRS complex is the average of the total depolarization of the ventricles in the frontal plane. There is a correlation between the mean electrical axis of the QRS complex and the electrical activity of the heart. Therefore, in pathologic hypertrophy of either ventricle (ie. when there is more muscle being depolarized), the axis tends to shift in the direction of the hypertrophied ventricle.
BDVL	Blood Volume	
BLPR	Blood pressure	pressure that is exerted by the blood upon the walls of the blood vessels and especially arteries and that varies with the muscular efficiency of the heart, the blood volume and viscosity, the age and health of the individual, and the state of the vascular wall.
BLUM	Bioluminescence	The emission of visible light by living organisms.

PHY PHYSIOLOGICAL EFFECT		
BTMP	Body Temperature	
C14U	C-14 Uptake	Amount or process of Carbon-14 uptake by a cell
CAEX	Calcium excretion	Calcium excreted by organism
CANU	Calcium not excreted	Calcium utilized/Calcium ingested * 100
CARE	Calcium retained	Calcium retained/Calcium ingested * 100
CARU	Calcium retention to utilization ratio	Ratio of Calcium retained (Utilized - Transferred to Egg) to Calcium utilized (ingest - excreted)
CATR	Calcium transfer	Per cent of calcium transferred to the egg, Calcium in egg/Calcium utilized x 100
CATU	Calcium transfer to utilization ratio	Per cent of calcium transferred to the egg in relation to calcium utilized.
CAUP	Calcium Uptake	
CCCL	Coccolith formation	One of the small, interlocking calcite plates covering members of the Coccolithophorida (unicellular, biflagelate, golden brown algae).
CDIN	Cardiac index	the heart output per unit of time over body surface, usually expressed in terms of liters per minute per square meter
CDOP	Cardiac output	A measurement of the blood flow through the heart to the systemic (and pulmonary) circulation. Cardiac output is expressed as volume of blood per unit time or litres/minute (Graylab on-line medical dictionary).
CDUP	Cadmium Uptake	
CFIX	Carbon Fixation	
CFLW	Coronary flow	The amount of blood flowing through the coronary artery.
CLRC	Caloric content	The energy derived from food is described by its caloric content.
CO2A	Carbon dioxide assimilation	Assimilation of carbon dioxide into an organism or tissue.
CO2T	Carbon Dioxide Tension, Partial Pressure of Carbon Dioxide, PCO2	
COLD	Cold Hardiness	

PHY PHYSIOLOGICAL EFFECT		
COUP	Cobalt uptake	Amount of cobalt taken in by an organism or an organism's tissues.
CREX	Chromium excretion	Chromium excreted in the urine by an organism.
CRUP	Chromium uptake	Amount of chromium taken in by an organism or an organism's tissues.
CTIM	Clotting Time	
CUUP	Copper Uptake	
DFIX	Dark Fixation	No definition provided
DORB	Dormancy Break	
DORI	Dormancy Induction	
NRGA	Energy Assimilation	
ECPT	Energy charge potential	
ECYC	Estrous cycle	The correlated phenomena of the endocrine and generative systems of a female mammal from the beginning of one period of estrus to the beginning of the next (MW online).
EECG	Electroencephalogram	
EEUR	Endogenous Excreted Urea	
ENST	Encystment	The process of forming or becoming enclosed in a cyst or capsule
ETSA	Electron Transfer System Activity	
EXCR	Excretion Rate	
FDCV	Food Conversion Efficiency	
FEPP	Fecal production	
FEUP	Iron Uptake	
FLUX	Rate of Movement of Ions Across Membranes	
GAEX	Glycolic acid excretion	Excretion of glycolic acid, which often serves as a basic component of the extracellular compounds of microalgae and is also the main substrate of photorespiration.

PHY PHYSIOLOGICAL EFFECT		
GFRT	Glomerular Filtration Rate	
GPHY	Physiology, General	Currently an AQUIRE ONLY code. Change in the organic processes or functions of a plant or an organism. Examples of effects in this category include caloric content, cough frequency, granule or concretion formation, heartbeat, membrane permeability, metabolic stress, osmoregulation, , urine frequency, ventilatory rate.. Used when more than one measurement is coded for an AQUIRE record.
GRAU	Granule/Grain Creation	
GSTF	Gas Transfer	
HGUP	Mercury uptake	Amount of mercury taken in by an organism or an organism's tissues.
HPRR	Heat production rate	
HTDP	Heart Double Product	Heart rate * cardiac output.
HTRT	Heart Rate	
HYDR	Hydration	The incorporation of molecular water into a complex molecule with the molecules or units of another species.
<IOUP>	Ion Uptake	
IUPT	Iodine Uptake	Amount of iodine taken in by an organism or an organism's tissues. (per Cobalt uptake in SOP).
IRRI	Irritation	
IVCD	Intraventricular conduction defects	Nonspecific intraventricular conduction defects are diagnosed when the QRS is modestly prolonged (< 120 msec) and the QRS pattern and axis are not typical of a hemiblock. The conduction delay is considered to occur beyond the Purkinje's myocardial gates and arises from slow cell-to-cell conduction. The phenomenon is common in patients with acute MI. No treatment is indicated.
KUPT	Potassium Uptake	
LDPX	Lipid Peroxidation	
MBCR	Metallothionein Binding Capacity Ratio	The ratio of Co to Co-binding capacity of metallothionein (MT) in the liver, kidney, and small intestine. (from paper) The ratio of unbound metal to metal binding capacity of metallothionein within an organism or plant.
MCCN	Microorganism Cenosis	A group of organisms in a self-sufficient community naturally occupying a small area with a uniform environment throughout.

PHY PHYSIOLOGICAL EFFECT		
MCUS	Mucus Production	
MGUP	Magnesium Uptake	
MNTL	Manganese translocation	The ability of an organism to move manganese from one location to another.
MNUP	Manganese Uptake	
MYCO	Mycorrhizal Colonization	
NAST	Nastic Movements	Movement of a flat plant part, oriented relative to the plant body and produced by diffuse stimuli causing disproportionate growth or increased turgor pressure in the tissues of one surface.
NAUP	Sodium uptake	The ability of an organism to remove sodium from a substrate and take sodium into its body.
NFIX	Nitrogen Fixation	Change in ability of plants to fix nitrogen.
NIUP	Nickel Uptake	
NMYC	Non-mycorrhizal colonization	
NPRA	Net Photosynthetic Rate	
NRGF	Metabolic efficiency	
NRGI	Energy intake	
NRGM	Metabolized energy	
NRGX	Energy excreted	
NRSP	Neuroresponse	
NRUP	Neutral Red Uptake	
NTSL	Nitrogen translocation	The ability of an organism to move nitrogen from one location to another.
NUPT	Nitrogen Uptake	
OCCP	Oxygen Carrying Capacity	
OSMO	Osmolality	The osmolality of an ideal solution of a nondissociating substance that exerts the same osmotic pressure as the solution being considered.

PHY PHYSIOLOGICAL EFFECT		
OXYG	Oxygen Consumption	Quantifiable change in oxygen uptake by the test organism; for plants see PSE (photosynthesis).
OXYT	Oxygen Tension, Partial Pressure of Oxygen Dioxide, Po2	
PBUP	Lead Uptake	
PERA	Protein Efficiency Ratio	
PERM	Permeability, tissue, membrane	The ability of a membrane or other material to permit a substance to pass through it.
PEXC	Phosphorus excretion	Phosphorus excreted by organism
PIGM	Pigmentation	Quantitative (ie., compared to the control) change in the pigment, e.g. melanization. Does not include chlorophyll (see CLR). If pigment levels are reported code in BCM.
PNUT	Phosphorus not excreted	Phosphorus utilized/Calcium ingested * 100
PPUP	Phosphate uptake	The ability of an organism to remove phosphate from a substrate and take phosphate into its body.
PRET	Phosphorus retained	Phosphorus retained/Calcium ingested * 100
PRIN	PR Intervals	
PRSY	Protein Synthesis	
PRUT	Phosphorus retention to utilization ratio	Ratio of Phosphorus retained (Utilized - Transferred to Egg) to Phosphorus utilized (ingested - excreted)
PSII	Photosystem II (PSII) Electron Transport Activity	
PSSR	Pressure	The act of pressing, or the condition of being pressed; compression; a squeezing; a crushing.
PSYN	Photosynthesis	Change in plant productivity indicated by change in 14C or CO_2 uptake or oxygen production.
PTRN	Phosphorus transfer	Per cent of phosphorus transferred to the egg, Phosphorus in egg/Phosphorus utilized x 100

PHY PHYSIOLOGICAL EFFECT		
PTUC	Protein Utilization Coefficient	
PTUT	Phosphorus transfer to utilization ratio	Per cent of phosphorus transferred to the egg in relation to phosphorus utilized.
PUPT	Phosphorus Uptake	
QRSV	Decreased QRS voltage	QRS Complex = The deflections in an electrocardiographic tracing and represent ventricular activity of the heart.
RBCD	Relative bradycardia	bradycardia = slow heart rate.
RCRA	Renal Clearance Ratio	
RESP	Respiration, O2 Production, CO2 Production	
RESQ	Respiration Quotient	
RPRT	Respiratory Rate	
SBNF	Swim bladder inflation	The ability for inflation of the swim bladder, a gas filled cavity found in the body cavity of most bony fishes.
SCGR	Scope for Growth	SFG= (energy consumed * assimilation efficiency) - energy lost through respiration
SENE	Senescence	The study of the biological changes related to aging.
SENI	Senescence Induced/Accelerated	
SENR	Senescence Retarded	
SEUP	Selenium Uptake	
SOXA	Sulfide oxidation activity	
SOXG	Superoxide Generation	

PHY PHYSIOLOGICAL EFFECT		
SRLO	Spectral Reflectance/Shift to Longer Wavelengths	
SRSH	Spectral Reflectance/Shift to Shorter Wavelengths	
STCG	S-T changes	Related to EKG, S-T Segment. The line between the end of the S wave and the beginning of the T wave.
STOC	Stomatal Conductance	A plant property related to the ease with which water vapor escapes from plant leaves through small pores in the leaves know as stomata (http://www.co2science.org/dictionary/define_s.htm).
STOM	Stomatal Aperture	
STVL	Stroke volume	the total volume of blood pumped by the heart in a single beat
STWK	Stroke Work	The work done by the ventricle to eject a volume of blood into the aorta (http://www.oucom.ohiou.edu/CVPhysiology/CF019.htm).
SUPT	Sulfur uptake	A nonmetallic element that occurs either free or combined especially in sulfides and sulfates, is a constituent of proteins, exists in several allotropic forms including yellow orthorhombic crystals, resembles oxygen chemically but is less active and more acidic, and is used especially in the chemical and paper industries, in rubber vulcanization, and in medicine for treating skin diseases
SWEL	Swelling	
SYPS	Systolic Pressure	The pressure exerted on the walls of the arteries during the contraction phase of the heart. Considered abnormally elevated if consistently over 150 mmHg. Systolic blood pressure varies with age, sex, size and relative condition (Graylab on-line medical dictionary).
TEUR	Total Excreted Urea	
TEXT	Texture Change	
THBR	Thyroid Hormone Binding Ratio	Recommended nomenclature for T3 Uptake test. A ratio of the solid matrix uptake and the serum uptake (http://www.abbottdiagnostics.com/glossary/glossary_t.htm).
THRG	Thermoregulation	
TRAN	Transpiration	The passage of a gas or liquid (in the form of vapor) through the skin, a membrane, or other tissue.

PHY PHYSIOLOGICAL EFFECT		
VENT	Ventilation, Opercular Movements, Undulatory Movements	
VMRS	Vasomotor response	Vasomotor = Pertaining to the regulation of the constriction or expansion of blood vessels.
WTUP	Water uptake	
WILT	Wilt	
ZNUP	Zinc Uptake	

POP POPULATION GROUP

POP POPULATION EFFECT

Measurement Code	**Measurement Name**	**Measurement Definition**
ABND	Abundance (Number of Organisms/Area; Density)	Number of individuals of a taxon per unit area equivalent to density. Comparison to controls; not related to time. Use for coding efficacy of removal of lice from fish.
BMAS	Biomass;	Includes Harvest Yield, Fruit or Seed Yield, Mass of Organism, Mass of Population.
CHLA	Chlorophyll A Content	Pigment found in photosynthetic cells; occurs in all organisms exhibiting aerobic photosynthesis.
CHLO	Chlorophyll Content	Pigment found in photosynthetic cells. Measurable change in chlorophyll content including chlorophyll content, chlorosis.
CVER	Cover, Canopy	
DBLT	Population doubling time	The time (usually reported in years) that it takes a population to double it present size.
DRFT	Drift	Change in the number of larval aquatic insects to travel a given distance in a stream.
DVRS	Diversity, Evenness	Change in number of species in a given area or index of species diversity (e.g. species richness, evenness).
EBCN	Effective Body Concentration	The body residue of a chemical that is associated with an effect.
GENT	Generation Time	

POP POPULATION EFFECT		
GPOP	Population Changes, General	Used when more than one measurement is coded for an AQUIRE record.
INDX	Index to Population Size; Count, Number, Abundance	
IRIN	Intrinsic Rate of Increase	
LAGT	Lagtime	
LCYC	Lifecycle	Total time taken by adults to produce new adults
NCHG	Population Change (Change in N/Change in Time)	
PBMS	Biomass or Weight of Entire Population	
PBRA	Biomass Turnover Ratio (Population/Biomass)	A measure that depends directly on growth and reproduction and indirectly on fertility through the rate of increase
PCCP	Population Carrying Capacity	Change in the carrying capacity of the population.
PGRT	Population Growth Rate	Rate of growth. Equivalent to intrinsic rate of increase and maximum possible rate of growth for species populations and colonies. Calculated by relating biomass or abundance to time. Life table data, germination rates are also included.
PRPE	Predator/Prey Dynamics	
RCLN	Colonization Rate	Change in ability to colonize an uninhibited substrate under toxicant stress.
RCPR	Recapture Ratio	Measure of size of an animal population; used to estimate the population size of a single species of highly mobile animals
SEXR	Sex Ratio	
STTL	Settling	
SURF	Surface Area	
THCH	Thatch accumulation	
TRAP	Trappability	

POP POPULATION EFFECT		
WGHT	Weight	

REP REPRODUCTION GROUP

REP REPRODUCTIVE EFFECT		
Measurement Code	**Measurement Name**	**Measurement Definition**
<ABNM>	Abnormal	DO not code REP ABNM. ABNM should be coded under MPH (when adult body structures are changing) or DVP (when embryo or juveniles are becoming abnormal throughout different lifestages)
ABRT	Abort	
<BMAS>	Biomass;	Includes Harvest Yield, Fruit or Seed Yield, Mass of Organism, Mass of Population..
BNDG	Pair Bonding Nesting Behavior	
CLLT	Clutch length	Number of days in a row on which a hen lays an egg is referred to as the clutch length.
CLUB	Clubbing (Hydra Reproduction)	
COUR	Courtship Behavior	
CYNG	Care of Young, Nest Attentiveness	
EBCN	Effective Body Concentration	The body residue of a chemical that is associated with an effect.
EGPN	Eggs per Nest	
FCND	Fecundity	The innate potential reproductive capacity of the individual organism, as denoted by its ability to form and separate from the body the mature germ cells.
FERT	Fertile, Fertility	Fertility - The capacity to conceive or induce conception.
FERZ	Fertilization	The physiochemical processes involved in the union of the male and female gametes to form the zygote.
FTCC	Fertile cocoons	
FLOR	Floral Induction	

REP REPRODUCTIVE EFFECT		
FRMS	Frames, Bees	
FRUH	Percent Fruit Harvested	
GCCT	Germ cell count	Number of sperm or eggs in the gonad or sample
GERM	Germination	The beginning or the process of development of a spore or seed.
GMET	Gamete production	Creation of a sex cell, egg, or sperm.
GIDX	Gestation Index	
GMEN	Germination Energy	GE = [(n1-n0)/t1 + (n2-n1)/t2 + (n3-n2)/t3 +.....(ni-ni-1)/ti] * 100/R =0/0 n1, n2, n3...ni = Cumulative germination counts on consecutive days t1, t2, t3...ti = numbers of days after beginning of test R = constant obtained by dividing 100 (which is a perfect germination percentage value for any species) by number of days on which first germination evaluations were made under international rules
GREP	Reproduction, General	Change in male and/or female reproductive ability; fertilization and fertilization rate; vegetation reproductive processes. Used when more than one measurement is coded for an AQUIRE record.
GSTT	Gestation Time	Gestation period = The period in mammals from fertilization to birth
HDEP	Hen-day egg production	number of eggs produced / number of live hens x 100
IFCC	Infertile cocoons	
INFL	Inflorescence	
INFT	Infertile	
LACG	Lactating	
MOTL	Motility	Sperm motility
MSPW	Mean spawns per female	The mean number of times a female has spawned.
NANT	Nests Abandoned	
NCLU	Corpus Lutea, Number of	
NDAY	Number of Days Between Eggs Laid	
NEGI	Number of Eggs Incubated	

REP REPRODUCTIVE EFFECT		
NINC	Number of Nests Incubated	
NOIM	Number of implantations	The number of embryos that attached to the maternal uterine wall (Webster's on-line).
NOPN	Number of Organisms per Nest	
NPOD	Number of Pods	
NREP	Non-reproducing organisms	Barren plants or organisms
NSNT	Successful Nests	
NSPN	Number Spawning	
NSTS	Number of Active Nests	
NSTI	Nest Initiation	
NSTS	Number of Nests Produced	
NTSZ	Nest Size	
NUNT	Unsuccessful Nests	
OBRD	Open Brood	
OEGP	Onset of Egg Production	
OOCY	Fully Developed Oocytes	
OVRT	Ovulation Rate	
PILS	Post-implantation loss	The loss of implanted embryos. This is calculated by determining the ratio of dead to total implants from the treated group compared to the ratio of dead to total implants from the control group.
PIPD	Pipped	
PLBR	Pairs with Litter or Brood	

REP REPRODUCTIVE EFFECT		
PREG	Pregnant, paris or gravid	Containing unborn young within the body , distended with or full of eggs
PRFM	Pregnant Females in a Population	
PROG	Progeny	Includes Counts, Numbers, Clutch, Litter or Brood Size, Progeny Produced Within a Specified Time Period, Numbers of Progeny per Parent Organism.
PRPL	Preimplantation loss	Loss of an embryo before uterine implantation (Webster's on-line).
PRTH	Parthenocarpy	Production of fruit without fertilization.
PSTG	Stage of Pregnancy	
RBEH	Reproductive Behavior Changes	
RPRD	Reproductive Capacity	
RSEM	Resorbed Embryos	
RSUC	Reproductive Success (General)	
SBRD	Sealed Brood	
SDIX	Seed Index	Grams per 100 seeds (definition from paper).
SEED	Seed Number	
SPCL	Sperm Cell Counts	
SPRD	Sporophyte Production	
SSET	Seed Set (No. Seeds/No. Florets)	
STRL	Sterility	The inability to reproduce because of congenital or acquired reproductive system disorders involving lack of gamete production or production of abnormal gametes.
T50P	Time to 50% production	number of days to achieve 50% egg production.

REP REPRODUCTIVE EFFECT		
TFPG	Time to first progeny	number of days to produce first litter.
TPRG	Time to pregnancy/gravidity	Time from mating to first gravidity
<TPRD>	Total Production	
TSPN	Time to Spawn	
TTPR	Time to peak reproduction	The time it take for adults to reach peak reproductive output.
TUPR	Tuber production	Tuber = The enlarged end of a rhizome in which food accumulates, as in potato.
VEGR	Vegetative Reproduction	
VIAB	Viable Offspring or Seed	

AEG AVIAN EGG EFFECT		
Measurement Code	**Measurement Name**	**Measurement Definition**
CRAK	Cracking	
ESIN	Eggshell Index	
FERT	Fertile, Fertility	The quality or state of being fertile. (Webster's) Use this effect-measurement pair when the fertility of avian eggs is studied.
LGTH	Length	
QUAL	Quality	
SHLL	Shell, Percent	
SIZE	Size	The physical magnitude, extent, or bulk **:** relative or proportionate dimensions .
SOFT	Softness	
STGH	Strength	The quality or state of being strong, power to resist force.
THIK	Thickness	Having or being of relatively great depth or extent from one surface to its opposite..
VIAB	Viable	

AEG AVIAN EGG EFFECT		
VOLU	Volume	The amount of space occupied by a three-dimensional object as measured in cubic units (as quarts or liters) **:** cubic capacity
WDTH	Width	The horizontal measurement taken at right angles to the length .
WGHT	Weight	The heaviness of an object.
YOLK	Yolk, Percent	

SYS ECOSYSTEM GROUP

PRS SYSTEM PROCESSES EFFECT

Measurement Code	**Measurement Name**	**Measurement Definition**
BGCM	Biogeochemical	Changes in whole system biogeochemical processes, e.g. sulfate reduction, denitrification, methanogenesis, nitrification, ammonification, net N or P removal.
CMIN	Carbon Mineralization	
CO2G	CO_2 Generation	Carbon dioxide generation in a soil/litter microcosm system.
CO2P	CO_2 Evolution	
DCMP	Decomposition	Change in rate of degradation of plant material.
GPPR	Gross Primary Productivity/Respiration	Change in ratio of system-level gross primary productivity to respiration.
GPRS	System processes, General	General code for AQUIRE.
NITR	Nitrification	
NMIN	Net Mineralization	
OUPT	Oxygen uptake	Oxygen uptake in a soil/litter microcosm system.
PPRO	Primary Productivity	
SPRO	Secondary Productivity	Change in production of consumer level organisms (e.g. macroinvertebrates).

PRS SYSTEM PROCESSES EFFECT		
SRES	System Respiration	Change in rate of oxygen uptake by entire ecosystem, as opposed to individual or groups of organisms.
TROP	Efficiency of Trophic Transfer Between Different Levels in the Food Chain; Assimilation Efficiency	Change in efficiency of trophic transfers between different levels in the food chain, e.g. between primary producers and grazers.

NOC NO GROUP CODE

NOC NO GROUP CODE EFFECT		
Measurement Code	**Measurement Name**	**Measurement Definition**
MULT	Multiple Effects Reported as One Result	Change in more than one effect when data were reported as one result; this code is used with reservation. The use must be verified through consultation with at least one other reviewer to ensure that the effects can not be reported individually.
<NONE>	None	
NRNR	Endpoint Reported Without a Specific Effect	The author reported an endpoint, but not a specific effect.. This code is used with reservation. The use must be verified through consultation with at least one other reviewer to ensure that there are no effect reported.
~XXX [This is an EFFECT code- NOT A MEASURENT CODE]	Delayed Effect	Currently an AQUIRE ONLY code. An effect (xxx) reported after the organisms are transferred to toxicant-free test chambers. A specific exception is clearance prior to tissue analysis; e.g., "after the exposure the organisms were placed in clean water for 10 hours to allow the organism to clear the stomach contents". This type of clearance is distinguished from depuration and is not coded as a delayed effect (see also page 4.C-10). Refer to Section 4.C-5. Test Result Parameters in the guidelines for additional information regarding coding of delayed effects.

Appendix T. Endpoint Codes and Definitions

ECOTOX ENDPOINTS		
DATABASE USAGE	**ENDPOINT**	**DEFINITION**
TERRETOX	**ATCN**	Asymptotic threshold concentration: The concentration of a chemical at which some percentage of a population of test organisms is in a state of approximate homeostasis for some prolonged period of time.
TERRETOX	**BAF**	Bioaccumulation factor: A value that is the "ratio of the concentration of a chemical in the organism to that in the medium (usually water). Bioaccumulation refers to both uptake of dissovled chemicals from water (bioconcentration) and uptake from ingested food and sediment residues." (Casarett et.al. 1986) For TERRETOX, use BAF to reflect concentration/ accumulation in tissues regardless of whether the author addresses the ratio as BAF or BCF. The use of a BCF code in the TERRETOX database will require prior approval.
AQUIRE	**BCF**	Bioconcentration factor: A term describing the degree to which a chemical can be concentrated in the tissues of an organism in the *aquatic environment* as a result of exposure to waterborne chemical at steady state during uptake phase. The BCF is a value which is equal to the concentration of a chemical in one or more tissues of the exposed aquatic organism divided by the average exposure water concentration of a chemical in the test. (Rand 1995) Use BCF only when reported by author for water exposures ie., AQUIRE; if BCF reported for terrestrial organisms/plants code as BAF.
AQUIRE	**BCFD**	Bioconcentration factor calculated using dry weight tissue concentration
TERRETOX AQUIRE	**ECxx**	Effective concentration for xx% of tested organisms.
TERRETOX AQUIRE	**EC100**	Effective concentration to 100% of test organisms
AQUIRE	**EDxx**	Effective dose for xx% of tested organisms
AQUIRE	**ETxx**	Effective time response to xx% of organisms.

ECOTOX ENDPOINTS		
DATABASE USAGE	**ENDPOINT**	**DEFINITION**
TERRETOX AQUIRE	**ICxx**	Inhibition concentration to xx% of organisms.
TERRETOX AQUIRE	**LCxx**	Lethal concentration to xx% of test animals.
TERRETOX AQUIRE	**LDxx**	Lethal dose to xx% of test animals
AQUIRE	**LETC**	Lethal Threshold Concentration: Toxicity curve asymptotic concentration indicating an incipient LC50 value. Acute lethal action has essentially ceased.
AQUIRE	**LOEC**	Lowest observable effect concentration
TERRETOX	**LOEL**	Lowest-observable-effect-level: lowest dose (concentration) producing effects that were significantly different (as reported by authors) from responses of controls (LOEAL/LOEC)
TERRETOX AQUIRE	**LTxx**	Lethal time, median: time required for xx% of a population to die from a given dose; also reported as “STxx” - survival time for xx% of a population
TERRETOX AQUIRE	**MATC**	Maximum Acceptable Toxicant Concentration: Hypothetical threshold concentration that is the geometric mean between the NOEC and LOEC concentration. The term Chronic Value (ChV) is encoded as MATC. Refer to companion endpoint note under LOEC definition
TERRETOX	**NOEL**	No-observable-effect-level: highest dose (concentration) producing effects not significantly different from responses of controls according to author's reported statistical test (NOEAL/NOEC)
TERRETOX AQUIRE	**NR**	Not reported
AQUIRE	**NR-LETH**	100% mortality or 0% survival of organisms

ECOTOX ENDPOINTS		
DATABASE USAGE	**ENDPOINT**	**DEFINITION**
AQUIRE	**NR-ZERO**	0% mortality or 100% survival of organisms

Appendix U. Response Site Codes

CODE	Site Name	Site Definition/Notes
A		
AB	Aboveground Portion, Plant	
ABD	Abdomen	1. The portion of the vertebrate body between the thorax and the pelvis or the cavity of this part of the body. 2. The elongate region posterior to the thorax in arthropods.
AD	Adipose Tissue	A type of connective tissue specialized for lipid storage.
AF	Amniotic Fluid	A substance that fills the amnion to protect the embryo from dessication and shock.
AG	Accessory Gland	A mass of glandular tissue separate from the main body of a gland. A gland associated with the male reproductive organs in insects.
AL	Albumen	Egg white
AM	Adductor Muscle	Any muscle that draws a part of the body toward the median axis.
ANG	Antennal Gland	(Green gland) An excretory organ in the cephalon of adult crustaceans
AP	Appendages	Any subordinate or nonessential structure associated with a major body part. Any jointed, peripheral extension, especially limbs, or arthropod and vertebrate bodies.
AR	Adrenal Gland	An endrocrine organ located close to the kidneys of vertebrates and consisting of two morphologically distinct components, the cortex and medulla.
ART	Artery	A vascular tube that carries blood away from the heart.

CODE	Site Name	Site Definition/Notes
AS	Air Sac	One of large, thin-walled structures associated with the tracheal system of some insects. In birds, any of the small vesicles that are connected with the respiratory system and located in bones and muscles to increase buoyancy.
AT	Alimentary Tract	Pertaining to the organs of digestion
ATH	Abdomen and thorax	Sample consists of abdomen and thorax tissue.
AX	Axons	The process or nerve fiber of a neuron that carries the unidirectional nerve impulse away from the cell body.
B		
BB	Bulb	
BC	Buccal mass	
BD	Bud	An embryonic shoot containing the growing stem tip surrounded by young leaves or flowers or both and frequently enclosed by bud scales.
BDW	Body wall	Consists of the layers of tissue, including skin, connective tissue, and hypaxial muscle, which surround and contain the internal structures of the body
BI	Bile	An alkaline fluid secreted by the liver and delivered to the duodenum to aid in the emulsification, digestion, and absorption of fats.
BIL	Bill	
BL	Blood	A fluid connective tissue consisting of the plasma and cells that circulate in the blood vessels.
BLC	Blood cells	an erythrocye (red blood cell) or leukocyte (white blood cell)
BM	Bone Marrow	A vascular modified connective tissue occurring in the long bones and certain flat bones of vertebrates.
BO	Bone	One of the parts constituting a vertebrate skeleton.
BOD	Body use WO	
BOL	Bolls	A pod or capsule, as of cotton and flax.
BR	Brain	The portion of the vertebrate central nervous system enclosed in the skull.
BRN	Branches	
BT	Breast	

CODE	Site Name	Site Definition/Notes
BU	Bursa	A simple sac or cavity with smooth walls containing a clear, slightly sickly fluid and interposed between two moving surfaces of the body to reduce friction.
BV	Blood Vessel	A tubular channel for blood transport.
BW	Bee's Wax	Yellow to grayish-brown solid wax obtained from bee honeycombs by boiling and straining..
BY	Byssus	
C		
CA	Cartilage	A specialized connective tissue which is bluish, translucent, and hard but yielding.
CAE	Caecum	The blind end of a cavity, duct, or tube, especially the sac at the beginning of the large intestine.
CAN	Canopy	The uppermost spreading branchy layer of a forest.
CAP	Cap, Mushroom	The convex, concave, or flattened spore-bearing structure of some basidiomycetes that is attached superiorly to the stem and typically is expanded with gills or pores on the underside -- called also pileus.
CB	Cob	1 : the axis on which the kernels of Indian corn are arranged. 2 : an ear of Indian corn .
CBH	Cerebral hemisphere	The two halves of the cerebrum, the largest part of the brain.
CBM	Cerebrum	an enlarged anterior or upper part of the brain; especially : the expanded anterior portion of the brain that in higher mammals overlies the rest of the brain, consists of cerebral hemispheres and connecting structures, and is considered to be the seat of conscious mental processes
CC	Cocoon	A protective case formed by the larvae of many insects, in which they pass the pupa stage.
CE	Coelomic fluid	
CEL	Cell	The microscopic functional and structural unit of all living organisms.
CG	Cloacal gland	Any of the sweat glands in the cloaca of lower invertebrates, as snakes or amphibians.
CRG	Cerebral ganglion	

CODE	Site Name	Site Definition/Notes
CH	Spinal Cord,	The cordlike posterior portion of the central nervous system contained within the spinal canal of the vertebral column of all vertebrates.
CIL	Cilia	Relatively short, centriole-based, hairlike processes on certain anatomical cells and motile organisms.
CL	Claw	
CLM	Coelomocytes	A corpuscle, including amebocytes and eleocytes, in the coelom of certain animals, especially annelids.
CLN	Colon	the part of the large intestine that extends from the cecum to the rectum
CM	Crown to Rump	
CN	Cotyledon	The first leaf of the embryo of seed plants.
CO	Collagen	A fibrous protein found in all multicellular animals, especially in connective tissue.
COL	Coleoptile	The first leaf of a monocotyledon seedling.
COR	Corm	A short, erect, fleshy underground stem, usually broader than high and covered with membrane scales.
CP	Capat	
CPS	Carpus	The joint, or the region of the joint, between the hand and thearm. The wrist.
to CRP		
CR	Crop	1) A plant or animal grown for it commercial value. 2) A distensible saccular diverticulum near the lower end of the esophagus of birds which serves to hold and soften food before passage into the stomach.
CRB	Cerebellum	Part of the vertebrate hindbrain, concerned primarily with somatic motor function, the control of muscle tone and the maintenance of balance.
CRP	Carapace	A dorsolateral, chitinous case covering the cephalothorax of many arthropods.
CS	Chromosome	Any of the complex, threadlike structures seen in animal and plant nuclei during kariokinesis which carry the linearly arranged genetic material.
CT	Cephalothorax	the body division comprising the united head and thorax of arachnids and higher crustaceans

CODE	Site Name	Site Definition/Notes
CTE	Ctenidium	The comb or featherlike respiratory apparatus of certain mollusks or a row of spines on the head or thorax of some fleas (MHSD)
CU	Culture Cells	
CUT	Cuticle	A layer of more or less solid substance which covers the free surface of an epithelial cell.
CV	Caudal Vertebra	Any of the small bones of the vertebral column that support the tail in vertebrates.
CX	Caudex	The main axis of a plant, including stem and roots.
CY	Cytosol	The fluid portion of the cytoplasm, that is, the cytoplasm exclusive of organelles and membranes.
CYT	Cytoplasm	the organized complex of inorganic and organic substances external to the nuclear membrane of a cell and including the cytosol and membrane-bound organelles (as mitochondria or chloroplasts)
D		
DG	Digestive Gland	Any structure that secretes digestive enzymes.
DN	Diencephalon	In vertebrate CNS the most rostral part of the brainstem, consisting of the thalamus, hypothalamus, subthalamus and epithalamus. It is a key relay zone for transmitting information about sensation and movement and also contains (in the hypothalamus) important control mechanisms for homeostatic integration.
DT	Digestive Tract	The alimentary canal.
E		
EA	Ear (Corn or Rice)	
EAL	Ear leaf (Corn)	
EC	Excreta	Excretion products; waste materials excreted by the body.
EG	Egg	Ova
EL	Elytrom	
EM	Embryo	1) In animals, those derivatives of the fertilized ovum that eventually become the offspring during their period of most rapid development. 2) In plants, the element of the seed that develops into a new individual.

CODE	Site Name	Site Definition/Notes
EMS	Embryonic shoot cells	
EN	Entrails	
EP	Endoplasmic Reticulum	A vacuolar system of the cytoplasm in differentiated cells that functions in protein synthesis and sequestration.
EPD	Epididymis	a system of ductules emerging posteriorly from the testis that holds sperm during maturation and that forms a tangled mass before uniting into a single coiled duct which is continuous with the vas deferens
ER	Erythrocyte	Red blood cell.
ES	Esophagus	The tubular portion of the alimentary canal interposed between the pharynx and the stomach.
ET	Edible Tissue	
EU	Egg Cuticle	
EV	Exuviae	
EX	Exoskeleton	The external supportive covering of certain invertebrates, such as arthropods.
EY	Eye	
EZ	Enzyme	Any of a group of catalytic proteins that are produced by living cells and that mediate and promote the chemical processes of life without themselves being altered or destroyed.
F		
F1	F1 Generation	the immediate offspring of a parent generation
FB	Frontal Bone	Of or pertaining to the forehead or the anterior part ofthe roof of the brain case; as, the frontal bones.
FC	Feces	The waste material eliminated by the gastrointestinal tract.
FD	Frond	The leaf of a palm or fern.
FE	Feathers	
FG	Foregut	the anterior part of the alimentary canal of a vertebrate embryo that develops into the pharynx, esophagus, stomach, and extreme anterior part of the intestine
FI	Fin	A paddle-shape appendage on fish and other aquatic animals that is used for propulsion, balance, and guidance.
FL	Fillet	A boneless slice of meat or fish.

CODE	Site Name	Site Definition/Notes
FLB	Flower Bud	
FLW	Flower/ Inflorescence	
FM	Femur	The proximal bone of the hind or lower limb in vertebrates.
FO	Foot	
FOD	Fodder	
FOL	Foliage	The aggregate of leaves of one or more plants.(MW on-line)
FOR	Forage	A vegetable food for domestic animals.
FP	Fatpad	
FR	Fruit	A fully matured plant ovary with or without other floral or shoot parts united with it at maturity.
G		
GB	Gall Bladder	A hollow, muscular organ in vertebrates which receives dilute bile from the liver, concentrates it, and discharges it into the duodenum.
GF	Green forage	
GG	Green Gland	(antennal gland) An excretory organ in the cephalon of adult crustaceans
GI	Gills	The respiratory organ of water-breathing animals. (Also branchia)
GC	Gland Complex	
GL	Ganglion	A mass of nerve tissue containing nerve cells external to the brain or spinal cord.
GMT	Germ tube	
GO	Gonads	A primary sex gland; an ovary or a testis.
GOL	Golgi Apparatus	A cellular organelle that is part of the cytoplasmic membrane system; it is composed of regions of stacked cisternae and it functions in secretory processes.
GP	Gills+Palps	
GR	Grain	
GS	Germinated seed	
GT	Gastrointestinal Tract	The stomach and intestine.

CODE	Site Name	Site Definition/Notes
GU	Gut	The intestine. The embryonic, digestive tube.
GZ	Gizzard	The muscular portion of the stomach of most birds where food is ground with the aid of ingested pebbles.
H		
HA	Hair	A threadlike outgrowth of the epidermis of animals.
HAY	Hay	Hay
HC	Hypocotyl callus cells	
HD	Head	
HE	Heart	
HK	Heart and Kidneys	Sample consists of heart and kidney tissue.
HKG	Husk and grain	
HL	Hemolymph	The circulating fluid of the open circulatory systems of many invertebrates.
HM	Humerus	The proximal bone of the forelimb in vertebrates.
HMC	Hemocyte	A cellular element of blood, especially in invertebrates.
HO	Honey	The sweet, viscous secretion composed principally of levulose and dextrose that is deposited in the honeycomb by the honeybee.
HP	Hepatopancreas	A gland in crustaceans and certain other invertebrates that combines the digestive functions of the liver and pancreas of vertebrates.
HSK	Husk	
HTC	Heterocyst	Clear, thick-walled cell occurring at intervals along the filament of certain blue-green algae.
HY	Hypothalamus	The floor of the third brain ventricle; site of production of several substances that act on the adenohypophysis.
HYD	Hypodermis	1. The outermost cell layer of the cortex of plants, aka exodremis. 2. The layer of cells that underlies and secretes the cuticle in arthropods and other invertebrates.
HYP	Hypocotyl	The portion of the embryonic plant axis below the cotyledon.
I		

CODE	Site Name	Site Definition/Notes
IB	Interparietal Bone	Between the parietal bones or cartilages; as, the interparietal suture.
IL	Ilium	The dorsal, upper, and largest one of the three bones composing either lateral half of the pelvis.
IN	Intestinal Tract	
IR	Interrenal gland	
IT	Internode	The interval between two nodes, as on a stem or along a nerve fiber.
J		
JA	Jaw	Either of two bones forming the skeleton of the mouth of vertebrates.
JV	Juvenile	Physiologically immature or undeveloped lifestage.
K		
KI	Kidney	Either of a pair of organs involved with the elimination of water and waste products from the body of vertebrates.
KR	Kernal	A whole grain or seed of a cereal plant, such as corn or barley.
L		
LAM	Laminae	the expanded part of a foliage leaf
LC	Leaf chloroplast	A type of cell plastid occurring in the green parts of plants, containing chlorophyll pigments, and functioning in photosynthesis and protein synthesis.
LD	Lipid, Fat	One of a class of compounds which contain long-chain aliphatic hydrocarbons and their derivatives; includes waxes, fats, and derived compounds.
LE	Leaf /Needle	
LEI	Leaf Index	
LEN	Lens	
LEO	Leaf, Old	
LEY	Leaf, Young	
LG	Leg	

CODE	Site Name	Site Definition/Notes
LI	Liver	A large vascular gland in the body of vertebrates consisting of a continuous parenchymal mass covered by a capsule; secretes bile, manufactures certain blood proteins and enzymes, and removes toxins from the systemic circulation.
LIN	Large intestine	the more terminal division of the vertebrate intestine that is wider and shorter than the small intestine, typically divided into cecum, colon, and rectum, and concerned especially with the resorption of water and the formation of feces
LM	Limb	1) An extremity or appendage used for locomotion or prehension. 2) A large primary tree branch
LP	Labial Palps	1) Either of a pair of fleshy appendages on either side of the mouth of certain bivalve mollusks. 2) A jointed appendage attached to the labium of certain insects.
LU	Lungs	Either of the paired air-filled sacs which function as organs of respiration.
LV	Left ventricle	The muscular chamber of the heart which accepts blood from the left atrium and ejects it into the aorta to the systemic circulation. (http://www.graylab.ac.uk/cgi-bin/omd?left+ventricle)
LY	Lysosome	A specialized cell organelle surrounded by a single membrane and containing a mixture of hydrolytic (digestive) enzymes.
M		
MA	Mantle	An enveloping layer, as the external body wall lining the shell of many invertebrates, or the external meristematic layers in a stem apex.
MB	Muscle+Bone	
MC	Microsome	A fragment of the endoplasmic reticulum. A minute granule of protoplasm.
ME	Meristem (apical or axillary)	Meristem - Formative plant tissue composed of undifferentiated cells capable of dividing and giving rise to other meristemic cells as well as specialized cell types.
MI	Midgut and Midgut Gland	The middle portion of the digestive tube in vertebrate embryos.
MIT	Mitochondria	Minute cytoplasmic organelles in the form of spherical granules, short rods, or long filaments found in almost all living cells.

CODE	Site Name	Site Definition/Notes
MK	Milk, lactating females	
MM	Mammary Tissue	
MO	Mucous	A viscid fluid secreted by mucus glands
MOB	Medulla oblongata	The lowest subdivision of the brainstem, immediately adjacent to the spinal cord. Houses important cardiac and respiratory regulatory centres.
MOM	Mother cells, pollen	
MR	Membrane	A thin layer of tissue surrounding a part of the body, separating adjacent cavities, lining cavities, or connecting adjacent structures.
MS	Mesenteric Lymph Node	
MSC	Mesencephalon	The middle segment of the brain; the midbrain.
MT	Multiple Tissue/ Organs	AQUIRE code. Used when multiple sites are coded for one record. The individual sites are reported as a REMARK. This code will be changed to MUL at a later date.
MTC	Metacarpus	The part of the hand or forefoot that contains the metacarpals.
MU	Muscle	A tissue composed of cells containing contractile fibers; three types are smooth, cardiac, and skeletal.
MUL	Multiple Sites	
MV	Microvilli	One of the filiform processes that form a brush border on the surfaces of certain specialized cells, such as intestinal epithelium.
MYC	Mycellium	Mass of interwoven filamentus hyphae that forms especially the vegatative portion of the thallus of a fungus.
N		
NB	Nasal Bone	Either of two small elongated rectangular bones that together form the bridge of the nose.
NC	Nerve Cord	a hollow tube that runs beneath the dorsal surface of the animal above the notochord (the principle nerve cord in the invertebrates, by contrast, is almost always located near the ventral surface
ND	Nodule, root	A bulbous enlargement found on roots of legumes and certain other plants, whose formation is stimulated by symbiotic, nitrogen-fixing bacteria that colonize the roots.

CODE	Site Name	Site Definition/Notes
NE	Nervous Tissue	The nerve cells and neuroglia of the nervous system.
NG	Nasal Gland	
NK	Neck	A constricted portion, such as the part connecting the head and trunk of the body.
NL	Needle	A slender-pointed leaf, as of the firs and other evergreens.
NR	Not Reported	
NU	Nuclei	
NY	Nymph	Any of various immature insects; especially : a larva of an insect with incomplete metamorphosis that differs from the adult especially in size and in its incompletely developed wings and genitalia.
O		
OC	Oocyte	An egg before the completion of maturation
OD	Oviduct	A tube that serves to conduct ova from the ovary to the exterior or to an intermediate organ such as the utersu (Fallopian tube)
OG	Organ	A differentiated structure of an organism composed of various cells or tissues and adapted for a specific function.
OL	Olfactory	Pertaining to olfaction, or the sense of smell.
OPR	Operculum	
OR	Organelle	A specialized subcellular structure, such as mitochondrion, having a special function.
OS	Osphradium	in Littorina; an organ capable of sensing chemical changes in the environment
OTO	Otoliths	A calcareous concretion on the end of a sensory hair cell in the vertebrate ear and in some invertebrates.
OV	Ovaries	A glandular organ that produces hormones and give rise to ova in female vertebrates.
P		
PA	Palps	Any of various sensory, usually fleshy appendages near the oral aperture of certain invertebrates.
PAN	Panicle	A branched or compound raceme in which the secondary branches are often racemose as well.

CODE	Site Name	Site Definition/Notes
PB	Pseudobranch	
PC	Pyloric ceca	1) One of the tubular pouches that open into the vertriculus of an insect. 2) One of the paired tubes having lateral glandular diverticula in each ray of a starfish. 3) One of the tubular pouches that open from the pyloric end of the stomach into the alimentary canal of most fishes.
PD	Pod	
PE	Penis	The male organ of copulation in vertebrates. Also known as phallus.
PEP	Pecten epipharyngis	
PES	Petiole and Stem	Both the a slender stem that supports the blade of a foliage leaf and the main trunk of a plant or a primary plant axis that develops buds and shoots instead of roots
PF	Pseudofeces	
PG	Prostrate Gland	A gland in the male which surrounds the neck of the bladder and the urethra. The prostrate contributes to the seminal fluid.
PGL	Preening gland	A relatively large, compact bilobed secretory organ located at the base of the tail (uropygium) of most birds having a keeled sternum. Also known as oil gland or uropygial gland. (McGraw-Hill)
PI	Pituitary Gland	(hypophysis) An epithelial body located at the base of the brain. Consists of two lobes. Secretes hormones.
PL	Plasma	The fluid portion of blood or lymph.
PLC	Placenta	1) A vascular organ that unites the fetus to the wall of the uterus. 2) A plant surface bearing a sporangium.
PLL	Pellicle	The outer membrane of protozoans.
PLP	Pulp	the soft, succulent part of a fruit usually composed of mesocarp (MW)
PO	Pollen, pollen grain	

CODE	Site Name	Site Definition/Notes
PPG	Preputial gland	A small scent gland in the human male which secretes the smegma. Also known as Tyson's gland. (McGraw-Hill)
PR	Proventriculus	1) A sac anterior to the gizzard in earthworms. 2) The true stomach of a bird, usually separated from the gizzard by a constriction.
PRF	Particulate fraction	
PRG	Progeny	Offspring, descendants
PS	Pancreas	A composite gland in most vertebrates that produces and secretes digestive enzymes, as well as at least two hormones, insulin and glucagon.
POS	Pod + Seed	
PT	Petioles	The stem which supports the blade of a leaf.
PTB	Parietal Bone	The side bone of the skull.
PTU	Plant, Unspecified	
PU	Pollen tube	The tube produced by the wall of a pollen grain which enters the embryo sac and provides a passage through which the male nuclei reach the female nuclei.
PX	Pharynx	A chamber at the oral end of the vertebrate alimentary canal, leading to the esophagus.
R		
RAC	Rachis	Elongated axis of an inflorescence.
RBC	Erythrocytes	a type of blood cell that contains a nucleus in all vertebrates but humans and that has hemoglobin in the cytoplasm also known as red blood cell or corpuscle.
RC	Rectum	The portion of the large intestine between the sigmoid flexure and the anus.
RD	Radicle	
RG	Rectal gland	In Sharks: rectal gland is a highly specialized organ whose only function is to pump salt
RH	Rhizome	An underground horizontal stem, often thickened and tuber-shaped, and processing buds, nodes, and scale-like leaves.

CODE	Site Name	Site Definition/Notes
RL	Root, Lateral	
RLP	Root, Primary lateral	
RLS	Root, Secondary lateral	
RM	Retractor Muscle	A muscle that draws a limb or other body part toward the body.
RO	Root	The absorbing and anchoring organ of a vascular plant; it bears neither leaves nor flowers and is usually subterranean.
ROC	Root Cortex	
ROE	Root, epidermis	
ROI	Root, Inner cortex	
ROO	Root, Outer cortex	
ROS	Root, Stele	The arrangement of vascular bundles in roots
RP	Root, Primary	
RR	Residual, Remnant, Carcass	
RS	Root + Stem	
RT	Reproductive Tissue	
RTC	Root tip cells	
RTP	Root tips	Terminal end of a root.
RU	Radius-Ulna	
RZ	Root + Rhizome	
S		
SA	Salt Gland	A compound tubular gland, located around the eyes and nasal passages in certain marine turtles, snakes, and birds, which copiously secretes a watery fluid containing a high percentage of salt.
SAP	Sap	The fluid part of a plant; specifically: a watery solution that circulates through
SB	Shell, Membrane	
SB2	Stem/Stalk, Lower Half	

CODE	Site Name	Site Definition/Notes
SC	Scale	1) A flat calcified or cornified platelike structure on the skin of most fishes and of some tetrapods. 2) The bract of a catkin.
SD	Seed	A fertilized ovule containing an embryo which forms a new plant upon germination.
SDL	Seedling	A plant grown from a seed.
SE	Sensory Organs	
SEM	Semen	a viscid whitish fluid of the male reproductive tract consisting of spermatozoa suspended in secretions of accessory glands
SG	Shell Gland	1) An organ that secretes the embryonic shell in many mollusks. 2) A specialized structure attached to the oviduct in certain animals that secretes the egg-shell material.
SH	Stomach	The tubular of saccular organ of the vertebrate digestive system located between the esophagus and the intestine and adapted for temporary food storage and for the preliminary stages of food breakdown.
SI	Siphon	1) A tubular element in various algae. 2) A tubular structure for intake or output of water in bivalves and other mollusks. 3) The sucking-type of proboscis in many arthropods.
SIN	Small intestine	the part of the intestine that lies between the stomach and colon, consists of duodenum, jejunum, and ileum, secretes digestive enzymes, and is the chief site of the absorption of digested nutrients
SK	Skin, Epidermis	The external covering of the vertebrate body, consisting of two layers, the outer epidermis and the inner dermis.
SKL	Skull	The bones and cartilages of the vertebrate head which forms the cranium and the face.
SL	Shell, Eggshell	The hard covering of an egg.
SLK	Silk	The silky styles on an ear of corn.
SLV	Stem to Leaves	
SM	Sperm	A mature male germ cell. (Spermatozoa)

CODE	Site Name	Site Definition/Notes
SMT	Spermatheca	A sac in the female for receiving and storing sperm in fertilization; found in many invertebrates and certain vertebrates. (Seminal receptacle)
SN	Skeleton	The hard framework of the animal body, especially the boney framework of the body of higher vertebrate animals.
SO	Shoot	The aerial portion of a plant, including stem, branches, and leaves. A new, immature growth on a plant.
SP	Spleen	A blood-forming lymphoid organ of the circulatory system, present in most vertebrates. (McGraw-Hill)
SPI	Spine, Backbone	An articulated series of vertebrae forming the axial skeleton of the trunk and the tail. Spinal column, vertebral column
SPK	Spikelet	The compound inflorescence of a grass consisting of one or several bracteate spikes.
SPR	Sporophyte	An individual of the spore-bearing generation in plats exhibiting alteration of
SQ	Shell (Aquatic)	A hard calcareous, outer covering on an animal body, as of bivalves and turtles.
SR	Serum	The liquid portion that remains when blood clots spontaneously and the formed and clotting elements are removed by centrifugation; it differs from plasma by the absence of fibrinogen.
SRB	Strobilus (mega-, micro-, etc.)	1) Conelike structure made up of sporophyllus or spore-bearing leaves. 2) The cone membranes of the Pinophyta
SRC	Secretory Cell	A cell that secretes a fluid.
SS	Stem/Stalk	The organ of vascular plant that usually develops branches and bears leaves and flowers.
SSP	Stem plus Petioles	The stem and stock of the leaf that is attached to the stem.
ST	Soft Tissue	
STA	Setae	A slender, usually rigid bristle or hair. Also known as chaeta.
STB	Seminiferous tubules	Any of the tubercles of the testes which produce spermatozoa. (McGraw-Hill)
STG	Straw and grain	
STH	Straw and husk	

CODE	Site Name	Site Definition/Notes
STL	Stolon	Horizontal branch from the base of a plant that produces new plants from buds at its tip or nodes.
STR	Straw	
STV	Stover mature cured stalks of grain with the ears removed that are used as feed for livestock (MW online)]	
SU	Stalk/Stem, Upper Half	
SV	Seminal Vesicle	A saclike, glandular diverticulum on each ductus deferens in male vertebrates; it is united with the excretory duct and serves for temporary storage of semen.
SWB	Swim Bladder	A gas-filled cavity found in the body cavities of most bony fishes; has various functions in different fishes, acting as a float, a lung, a hearing aid, and a sound producing organ.
SX	Submaxillary Gland	(Submandibular gland) A large seromucous or mixed salivary gland located below the mandible on each side of the jaw.
T		
TA	Tail	1) The caudal fin of a fish or aquatic mammal. 2) The usually slender appendage that arises immediately above the anus in many vertebrates and contains the caudal vertebrae.
TB	Tibia	The larger of the two leg bones, articulating with the femur, fibula, and talus
TBC	Tubercules	A small knoblike prominence.
TD	Transudate	A fluid that passes through the pores or interstices of a membrane.
TE	Testes	The male reproductive glands in vertebrates; after sexual maturity, the source of sperm and hormones
TF	Tuber Flesh	Tuber = The enlarged end of a rhizome in which food accumulates, as is the potato.
TG	Thigh muscle	Thigh - The upper part of the leg, from the pelvis to the knee.

CODE	Site Name	Site Definition/Notes
TH	Thorax	1) The chest; the cavity of the mammalian body between the neck and the diaphragm, containing the heart, lungs, and mediastinal structures. 2) The middle of three principal divisions of the body of certain classes of arthropods.
TI	Tissue	An aggregation of cells more or less similar morphologically and functionally.
TIL	Tillers	A shoot that develops from an axillary or adventitious bud at the base of a stem.
TLE	Trifoliolate Leaf/Leaves	A leaf consisting of three leaflets.
TLI	Thalli	Thallus = A plant body that is not differentiated into special tissue systems or organs and may vary from a single cell to a complex, branching multicellular structure.
TM	Tarsus-Metatarsus	
TN	Tentacles	Any of various elongate, flexible processes with tactile, prehensile, and sometimes other functions, and which are borne on the head or about the mouth of many animals.
TO	Tongue	A muscular organ located on the floor of the mouth of most vertebrates which may serve various functions, such as taking and swallowing food or tasting or as a tactile organ or sometimes as a prehensile organ.
TOP	Tops (Plant)	
TOR	Torso	Portion of the body excluding the head and limbs; trunk
TP	Tuber Peeling	
TR	Tarsus	The instep of the foot consisting of the calcaneus, talus, cuboid, navicular, medial, intermediate, and lateral cuneiform bones.
TS	Thymus	A lymphoid organ in the neck or upper thorax of all vertebrates; it is prominent in early life and is essential for normal development of the circulating pool of lymphocytes.
TSL	Tassel	The terminal male inflorescence of some plants and especially corn.
TT	Tibiotarsus	Pertaining to the tibia and the tarsus. Tibia - shin bone Tarsus - The seven bones constituting the articulation between the foot and the leg.

CODE	Site Name	Site Definition/Notes
TTH	Tooth, teeth	One of the bony structures supported by the jaws in mammals and by other bones in the mouth and pharynx in lower vertebrates serving principally for prehension and mastication.
TU	Tuber	Tuber = The enlarged end of a rhizome in which food accumulates, as is the potato.
TY	Thyroid	An endocrine gland found in all vertebrates that produces, stores, and secretes the thyroid hormones.
U		
UB	Urinary Bladder	A hollow organ which serves as a reservoir for urine.
UG	Uropygial Gland	A relatively large, compact, bilobed, secretory organ located at the base of the tail of most birds having a keeled sternum. Also known as oil gland.
ULE	Unifoliate (Primary) Leaf/Leaves	A single leaf.
UNT	Urinary tract	
UP	Urogenital papillae	Urogenital = pertaining to the urinary and genital apparatus. Papillae = A small nipple-like projection, elevation, or structure.
UR	Urine	The fluid excreted by the kidneys
UT	Uterus	The organ of gestation in mammals which receives and retains the fertilized ovum, holds the fetus during development, and becomes the principal agent of its explusion at term.
V		
VA	Vagina	The canal from the vulvar opening to the cervix uteri. (McGraw-Hill)
VAS	Vasculature	
VD	Vas Deferens	The portion of the excretory duct system of the testis which runs from the epididymal duct to the ejaculatory duct.
VE	Vertebra	One of the bones that make up the spine in vertebrates.
VG	Vegetative portion	WO - SD or FR
VI	Viscera	The organs within the cavities of the body of an organism
VL	Villi	villus = A fingerlike projection from the surface of a membrane.

CODE	Site Name	Site Definition/Notes
VN	Vines	a plant whose stem requires support and which climbs by tendrils or twining or creeps along the ground; also : the stem of such a plant
W		
WI	Wings	Any of the paired appendages serving organs of flight on many animals
WL	Wall, Body	
WO	Whole Organism	
Y		
YO	Yolk	The yellow spherical mass of food material that makes up the central portion of the egg of a bird or reptile.
Z		
ZP	Zona pellucida	pellucid zone: a thick, transparent, noncellular layer or envelope of uniform thickness surrounding an oocyte; also called oolemma. Under a microscope it appears radially striated and is therefore also called zona radiata, zona striata or striated membrane

Appendix V. Common Keywords for Other Effects Text Field (AQUIRE only)

age efcts	Sediment
Alkalinity efcts	Sex efcts
Bacteria	Size efcts
Conductivity efcts	Temperature efcts
Critical Level	Toxicity Symptoms
Diet Study	Transport
Depuration	Uptake
D.O. efcts	
Effluent	
Elimination	
fate	
Field Study	
Food Chain Study	
Genotoxicity threshold	
Hardness efcts	
Humic Acid	
Hypoxia efcts	
Ind Taxon Result	
in vitro	
Kinetics	
Lethal Body Burden	
log LC50	
Metabolism	
metabolites	
Microtox	
Mixture	
nutrient study	
Oil	
Org_C efcts	
pH efcts	
Pre-Exposure Study	
QSAR	
Radiolabel	
Recovery	
Safe Conc (Safe Concentration)	
Salinity efcts	

Appendix W. Water Chemistry Units (AQUIRE only)

Code	Definition
%	percent
% Sat	Percent saturation
C	Celsius
F	Fahrenheit
K	Kelvin
N	Normal
NR	Not reported
PSU	practical salinity units
cm	centimeters
dH	degrees German hardness
ft	feet
g CaCO3	grams Calcium carbonate
g/kg	grams per kilograms
g/L	grams per liter
HCO3	Hydrogen carbonate
in	inches
m	meters
mM	millimolar
mS	milli Siemens
mS/m	milli Siemens per meter
mg/dm3	milligram per cubic decimeter
meq/L	milli equivalents per liter
mg/L	milligrams per liter
mg/L C	milligrams per liter Carbon
mg/L CaCO3	milligrams / liter Calcium carbonate

Code	Definition
mg/L EDTA	milligrams per liter EDTA
mg/L MO	milligrams per liter Methyl Orange
ml/L	milliter per liter
mm	millimeters
mm Hg	millimeters Mercury
mmhos	milli ohms
mmol/L	millimoles per liter
uS	micro Siemens
uS/cm	micro Siemens per centimeter
ueq/L	micro equivalents per liter
umhos	micro ohms
umhos/cm	micro ohms per centimeter
umol/L	micromoles per liter

Appendix X. Habitat Codes and Common Descriptors (AQUIRE only)

Code	Habitat	Definition	Descriptors
E	Estuarine	"deepwater tidal habitats... with sporadic access to open ocean...ocean water... is diluted by freshwater..."; Salinity range between 0.5-30ppt	Bay Marsh, brackish, salt, tidal Estuary Swamp
L	Lacustrine	"permanently flooded lakes and reservoirs, intermittent lakes and tidal lakes with salinity <= 0.5ppt"; total area exceeds 8 ha (8 acres) and 2 m water depth.	Bay Cove Impoundment Lake
M	Marine	"open ocean overlying the continental shelf and it associated.... coastline; includes shallow coastal indentations or bays; salinity [typically] exceed ppt"	Bay Gulf Open Ocean Reef Seaweed bed
P	Palustrine	"small, shallow, permanent or intermittent fresh water bodies"; total area <= 8 ha (20 acres) and <=2m water depth	Bog Fen Marsh Rice fields Swamp Wetland
R	Riverine	"a channel, an open conduit either naturally or artificially created which periodically or continuously contains moving water or which forms a connecting link between two bodies of standing water" salinity <= 0.5ppt	Creek River Stream Tidal River Tributary
NR	Not Reported		

Appendix Y. Substrate Codes (AQUIRE only)

Code	Definition
CL	Clay
GR	Gravel
M	Mineral
MX	Mixed substrate
MU	Mud
NR	Not Reported
O	Organic
SA	Sand
SI	Silt

Appendix Z. Depth Units

Code	Definition
NR	Not reported
cm	Centimeters
ft	Feet
in	Inches
m	Meters
mm	Millimeters

Appendix AA. Field Location Abbreviations (AQUIRE only)

Code	Definition
Aqu	Aquatic
Agric	Agricultural
Co	County
Cr	Creek
Dev	Development
Dis	District
E*	East
Env	Environmental
Exp	Experimental
Fish	Fisheries
Inst	Institute
Isl	Island
L	Lake
Lab	Laboratory
Natl	National
N*	North
NE*	Northeast
NW*	Northwest
MT	Mountain
R	River
Res	Research
Resvr	Reservoir
S*	South
SE*	Southeast

Code	Definition
SW*	Southwest
St	Saint
Sta	Station
USFWS	United States Fish and Wildlife
Univ	University
W*	West

*Do not abbreviate directional information that is part of the proper name of a location (e.g. South L or Northwest Territory)

Appendix BB. Geographic Text (AQUIRE only)

AF AFGHANISTAN
AF01 Badakhshan
AF02 Badghis
AF03 Baghlan
AF30 Balkh
AF05 Bamian
AF06 Farah
AF07 Faryab
AF08 Ghazni
AF09 Ghowr
AF10 Helmand
AF11 Herat
AF31 Jowzjan
AF13 Kabol
AF23 Kandahar
AF13 Kapisa
AF15 Konar
AF24 Kondoz
AF16 Laghman
AF17 Lowgar
AF18 Nangarhar
AF19 Nimruz
AF20 Oruzgan
AF21 Paktia
AF22 Paktika
AF22 Parvan
AF32 Samangan
AF33 Sar-e Pol
AF26 Takhar
AF27 Vardak
AF28 Zabol

AL ALBANIA
AL01 Berat
AL02 Dibre
AL03 Durres
AL04 Elbasan
AL05 Fier
AL06 Gjirokaster
AL07 Gramsh
AL08 Kolonje
AL09 Korce
AL10 Kruje
AL11 Kukes
AL12 Lezhe
AL13 Librazhd
AL14 Lushnje
AL15 Mat
AL16 Mirdite
AL17 Permet
AL18 Pogradec
AL19 Puke
AL20 Sarande
AL21 Shkoder
AL22 Skrapar
AL23 Tepelene
AL28 Tirane
AL26 Tropoje
AL27 Vlore

AG ALGERIA
AG34 Adrar
AG35 Ain Defla
AG36 Ain Temouchent
AG01 Alger
AG37 Annaba
AG03 Batna
AQ38 Bechar
AG18 Bejaia
AG19 Biskra
AG20 Blida
AG39 Bordj Bou Arreridj
AG21 Bouira
AG40 Boumerdes
AG41 Chlef
AG04 Constantine
AG22 Djelfa
AG42 El Bayadh
AG43 El Oued
AG44 El Tarf
AG45 Ghardaia
AG23 Guelma
AG46 Illizi
AG24 Jijel
AG47 Khenchela
AG25 Laghouat
AG26 Mascara
AG06 Medea
AG48 Mila
AG07 Mostaganem
AG27 M'sila
AG49 Naama
AG09 Oran
AG50 Ouargla
AG29 Oum el Bouaghi
AG51 Relizane
AG10 Saida
AG12 Setif
AG30 Sidi Bel Abbes
AG31 Skikda
AG52 Souk Ahras
AG53 Tamanghasset
AG33 Tebessa
AG13 Tiaret
AG54 Tindouf
AG55 Tipaza
AG56 Tissemsilt
AG14 Tizi Ouzou
AG15 Tlemcen

AQ AMERICAN SAMOA

AN ANDORRA
AN01 Andorra
AN02 Canillo
AN03 Encamp
AN04 La Massana
AN05 Ordino
An06 Sant Julia de Loria

AO ANGOLA
AO19 Bengo
AO01 Benguela
AO02 Bie
AO03 Cabinda
AO04 Cuando Cubango
AO05 Cuanza Norte
AO06 Cuanza Sul
AO07 Cunene
AO08 Huambo
AO09 Huila
AO20 Luanda
AO17 Lunda Norte
AO18 Lunda Sul
AO12 Malanje
AO14 Moxico
AO15 Uige
AO16 Zaire

AV ANGUILLA

AY ANTARCTICA

AC ANTIGUA AND BARBUDA
AC01 Barbuda
AC03 Saint George
AC04 Saint John
AC05 Saint Mary
AC06 Saint Paul
AC07 Saint Peter
AC08 Saint Philip

AR ARGENTINA

AC01 Buenos Aires
AC02 Catamarca
AR03 Chaco
AR04 Chubut
AR05 Cordoba
AR06 Corrientes
AR07 Distrito Federal
AR08 Entre Rios
AR09 Formosa
AR10 Jujuy
AR11 La Pampa
AR12 La Rioja
AR13 Mendoza
AR14 Misiones
AR15 Neuquen
AR16 Rio Negro
AR17 Salta
AR18 San Juan
AR19 San Luis
AR20 Santa Cruz
AR21 Santa Fe
AR22 Santiago del Estero
AR23 Tierra del Fuego, Antartidae Islas del Atlantico Sur
AR24 Tucuman

AM ARMENIA

AA ARUBA

AT ASHMORE AND CARTIER ISLANDS

* AS AUSTRALIA
AS01 Australian Capital Territory
AS02 New South Wales
AS03 Northern Territory
AS04 Queensland
AS05 South Australia
AS06 Tasmania
AS07 Victoria
AS08 Western Australia

AU AUSTRIA
AU01 Burgenland
AU02 Karnten
AU03 Niederosterreich
AU04 Oberosterreich
AU05 Salzburg
AU06 Steiermark
AU07 Tirol
AU08 Vorarlberg
AU09 Wien

AJ AZERBAIJAN

BF BAHAMAS, THE
BF24 Acklins and Crooked Islands
BF05 Bimini
BF06 Cat Island
BF10 Exuma
BF25 Freeport
BF26 Fresh Creek
BF27 Governor's Harbour
BF28 Green Turtle Cay
BF22 Harbour Island
BF29 High Rock
BG13 Inagua
BF30 Kemps Bay
BF15 Long Island
BF31 Marsh Harbour
BF16 Mayaguana
BF23 New Providence
BF32 Nicholllstown and Berry Islands
BF18 Ragged Island
BF33 Rock Sound
BF34 Sandy Point
BF35 San Salvador and Rum Cay

BA BAHRAIN
BA01 Al Hadd
BA02 Al Manamah
BA08 Al Mintaqah al Gharbiyah
BA11 Al Mintaqah al Wusta
BA10 Al Mintaqah ash Shamaliyah
BA03 Al Muharraq
BA13 Ar Rifa` wa al Mintaqah al Janubiyah
BA05 Jidd Hafs
BA14 Madinat Hamad
BA12 Madinat `Isa
BA09 Mintaqat Juzur Hawar
BA06 Sitrah

FQ BAKER ISLAND

BG BANGLADESH
BG22 Bagerhat
BG04 Bandarban
BG25 Barguna
BG01 Barisal
BG23 Bhola
BG24 Bogra
BG26 Brahmanbaria
BG27 Chandpur
BG28 Chapai Nawabganj
BG29 Chattagram
BG30 Chuadanga
BG05 Comilla
BG31 Cox's Bazar
BG32 Dhaka
BG33 Dinajpur
BG34 Faridpur
BG35 Feni
BG36 Gaibandha
BG37 Gazipur
BG38 Gopalganj
BG39 Habiganj
BG40 Jaipurhat
BG41 Jamalpur
BG42 Jessore
BG43 Jhalakati
BG44 Jhenaidah
BG45 Khagrachari
BG46 Khulna
BG47 Kishorganj
BG48 Kurigram
BG49 Kushtia
BG50 Laksmipur
BG51 Lalmonirhat
BG52 Madaripur
BG53 Magura
BG54 Manikganj
BG55 Meherpur
BG56 Moulavibazar
BG57 Munshiganj
BG12 Mymensingh
BG58 Naogaon
BG59 Narail
BG60 Narayanganj
BG61 Narsingdi
BG62 Nator
BG63 Netrakona
BG64 Nilphamari
BG13 Noakhali
BG65 Pabna
BG66 Panchagar
BG67 Parbattya Chattagram
BG15 Patuakhali
BG68 Pirojpur
BG69 Rajbari
BG70 Rajshahi

BG71 Rangpur
BG72 Satkhira
BG73 Shariyatpur
BG74 Sherpur
BG75 Sirajganj
BG76 Sunamganj
BG77 Sylhet
BG78 Tangail
BG79 Thakurgaon

BB BARBADOS
BB01 Christ Church
BB02 Saint Andrew
BB03 Saint George
BB04 Saint James
BB05 Saint John
BB06 Saint Joseph
BB07 Saint Lucy
BB08 Saint Michael
BB09 Saint Peter
BB10 Saint Philip
BB11 Saint Thomas

BS BASSAS DA INDIA

BO BELARUS

BE BELGIUM
BE01 Antwerpen
BE02 Brabant
BE03 Hainaut
BE04 Liege
BE05 Limburg
BE06 Luxembourg
BE07 Namur
BE08 Oost-Vlaanderen
BE09 West-Vlaanderen

BH BELIZE
BH01 Belize
BH02 Cayo
BH03 Corozal
BH04 Orange Walk
BH05 Stann Creek
BH06 Toledo

BN BENIN
BN01 Atakora
BN02 Atlantique
BN03 Borgou
BN04 Mono
BN05 Oueme
BN06 Zou

BD BERMUDA
BD01 Devonshire
BD03 Hamilton
BD03 Hamilton
BD04 Paget
BD05 Pembroke
BD06 Saint George
BD07 Saint George's
BD08 Sandys
BD09 Smiths
BD10 Southampton
BD11 Warwick

BT BHUTAN
BT05 Bumthang
BT06 Chhukha
BT07 Chirang
BT08 Daga
BT09 Geylegphug
BT10 Ha
BT11 Lhuntshi
BT12 Mongar
BT13 Paro
BT14 Pemagatsel
BT15 Punakha
BT16 Samchi
BT17 Samdrup
BT18 Shemgang
BT19 Tashigang
BT20 Thimphu
BT21 Tongsa
BT22 Wangdi Phodrang

BL BOLIVIA
BL01 Chuquisaca
BL02 Cochabamba
BL03 El Beni
BL04 La Paz
BL05 Oruro
BL06 Pando
BL07 Potosi
BL08 Santa Cruz
BL09 Tarija

BK BOSNIA AND HERZEGOVINA

* BC BOTSWANA
BC01 Central
BC02 Chobe
BC03 Ghanzi
BC04 Kgalagadi
BC05 Kgatleng
BC06 Kweneng
BC07 Ngamiland
BC08 North-East
BC09 South-East
BC10 Southern

BV BOUVET ISLAND

* BR BRAZIL
BR01 Acre
BR02 Alagoas
BR03 Amapa
BR04 Amazonas
BR05 Bahia
BR06 Ceara
BR07 Distrito Federal
BR08 Espirito Santo
BR29 Goias
BR13 Maranhao
BR14 Mato Grosso
BR11 Mato Grosso do Sul
BR15 Minas Gerais
BR16 Para
BR17 Paraiba
BR18 Parana
BR30 Pernambuco
BR20 Piaui
BR21 Rio de Janeiro
BR22 Rio Grande do Norte
BR23 Rio Grande do Sul
BR24 Rondonia
BR25 Roraima
BR26 Santa Catarina
BR27 Sao Paulo
BR28 Sergipe
BR31 Tocantins

IO BRITISH INDIAN OCEAN TERRITORY

VI BRITISH VIRGIN ISLANDS

BX BRUNEI
BX01 Belait
BX02 Brunei and Muara
BX03 Temburong
BX04 Tutong

BU BULGARIA
BU29 Burgas
BU30 Grad Sofiya
BU31 Khaskovo
BU32 Lovech

BU33 Mikhaylovgrad
BU34 Plovdiv
BU35 Razgrad
BU36 Sofiya
BU37 Varna

* UV BURKINA
UV15 Bam
UV16 Bazega
UV17 Bougouriba
UV18 Boulgou
UV19 Boulkiemde
UV20 Ganzourgou
UV21 Gnagna
UV22 Gourma
UV23 Houet
UV24 Kadiogo
UV25 Kenedougou
UV26 Komoe
UV27 Kossi
UV28 Kouritenga
UV29 Mouhoun
UV30 Namentenga
UV31 Naouri
UV32 Oubritenga
UV33 Oudalan
UV34 Passore
UV35 Poni
UV36 Sanguie
UV37 Sanmatenga
UV38 Seno
UV39 Sissili
UV40 Soum
UV41 Sourou
UV42 Tapoa
UV43 Yatenga
UV44 Zoundweogo

BM BURMA
BM02 Chin State
BM03 Irrawaddy
BM04 Kachin State
BM05 Karan State
BM06 Kayah State
BM07 Magwe
BM08 Mandalay
BM13 Mon State
BM09 Pegu
BM01 Rakhine State
BM14 Rangoon
BM10 Sagaing
BM11 Shan State
BM12 Tenasserim

BY BURUNDI
BY09 Bubanza
BY02 Bujumbura
BY10 Bururi
BY11 Cankuzo
BY12 Cibitoke
BY13 Gitega
BY14 Karuzi
BY15 Kayanza
BY16 Kirundo
BY17 Makamba
BY05 Muramvya
BY18 Muyinga
BY19 Ngozi
BY20 Rutana
BY21 Ruyigi

CB CAMBODIA
CB01 Batdambang
CB02 Kampong Cham
CB03 Kampong Chhnang
CB04 Kampong Spoe
CB05 Kampong Thum
CB06 Kampot
CB07 Kandal
CB08 Kaoh Kong
CB09 Kracheh
CB10 Mondol Kiri
CB11 Phnum Penh
CB12 Pouthisat
CB13 Preah Vihear
CB14 Prey Veng
CB15 Rotanokiri
CB16 Siemreab-Otdar Meanchey
CB17 Stoeng Treng
CB18 Svay Rieng
CB19 Takev

* CM CAMEROON
CM10 Adamaoua
CM11 Centre
CM04 Est
CM12 Extreme-Nord
CM05 Littoral
CM13 Nord
CM07 Nord-Ouest
CM08 Ouest
CM14 Sud
CM09 Sud-Ouest

* CA CANADA
* CA01 Alberta
* CA02 British Columbia
* CA03 Manitoba
* CA04 New Brunswick
* CA05 Newfoundland
* CA06 Northwest Territories
* CA07 Nova Scotia
* CA08 Ontario
* CA09 Prince Edward Island
* CA10 Quebec
* CA11 Saskatchewan
* CA12 Yukon Territory

CV CAPE VERDE
CV01 Boa Vista
CV02 Brava
CV03 Fogo
CV04 Maio
CV05 Paul
CV06 Praia
CV07 Ribeira Grande
CV08 Sal
CV09 Santa Catarina
CV10 Sao Nicolau
CV11 Sao Vicente
CV12 Tarrafal

CJ CAYMAN ISLANDS
CJ01 Creek
CJ02 Eastern
CJ03 Midland
CJ04 South Town
CJ05 Spot Bay
CJ06 Stake Bay
CJ07 West End
CJ08 Western

CT CENTRAL AFRICAN REPUBLIC
CT01 Bamingui-Bangoran
CT18 Bangui
CT02 Basse-Kotto
CT15 Gribingui
CT03 Haute-Kotto
CT04 Haute-Sangha
CT05 Haut-Mbomou
CT06 Kemo-Gribingui
CT07 Lobaye
CT08 Mbomou
CT09 Nana-Mambere
CT17 Ombella-Mpoko
CT11 Ouaka
CT12 Ouham
CT13 Ouham-Pende

CT16 Sangha
CT14 Vakaga

CD CHAD
CD01 Batha
CD02 Biltine
CD03 Borkou-Ennedi-Tibesti
CD04 Chari-Baguirmi
CD05 Guera
CD06 Kanem
CD07 Lac
CD08 Logone Occidental
CD09 Logone Oriental
CD10 Mayo-Kebbi
CD11 Moyen-Chari
CD12 Ouaddai
CD13 Salamat
CD14 Tandjile

CI CHILE
CI02 Aisen del General Carlos Ibanez del Campo
CI03 Antofagasta
CI04 Araucania
CI05 Atacama
CI06 Bio-Bio
CI07 Coquimbo
CI08 Libertador General Bernardo O'Higgins
CI09 Los Lagos
CI10 Magallanes y de la Antartica Chilena
CI11 Maule
CI12 Region Metropolitana
CI13 Tarapaca
Valparaiso

* CH CHINA
CH01 Anhui
CH22 Beijing
CH07 Fujian
CH15 Gansu
CH30 Guangdong
CH16 Guangxi
CH18 Guizhou
CH31 Hainan
CH10 Hebei
CH08 Heilongjiang
CH09 Henan
CH12 Hubei
CH11 Hunan
CH04 Jiangsu
CH03 Jiangxi
CH05 Jilin
CH19 Liaoning
CH20 Nei Mongol
CH21 Ningxia
CH06 Qinghai
CH26 Shaanxi
CH25 Shandong
CH23 Shanghai
CH24 Shanxi
CH27 Sichuan
CH28 Tianjin
CH13 Xinjiang
CH14 Xizang
CH29 Yunnan
CH02 Zhejiang

KT CHRISTMAS ISLAND

IP CLIPPERTON ISLAND

CK COCOS (KEELING) ISLANDS

CO COLOMBIA
CO01 Amazonas
CO02 Antioquia
CO03 Arauca
CO04 Atlantico
CO35 Bolivar
CO36 Boyaca
CO37 Caldas
CO08 Caqueta
CO32 Casanare
CO09 Cauca
CO10 Cesar
CO11 Choco
CO12 Cordoba
CO33 Cundinamarca
CO34 Distrito Especial
CO15 Guainia
CO14 Guaviare
CO16 Huila
CO17 La Guajira
CO38 Magdalena
CO19 Meta
CO20 Narino
CO21 Norte de Santander
CO22 Putumayo
CO23 Quindio
CO24 Risaralda
CO25 San Andres y Providencia
CO26 Santander
CO27 Sucre
CO28 Tolima
CO29 Valle del Cauca
CO30 Vaupes
CO31 CVichada

CN COMOROS
CN01 Anjouan
CN02 Grande Comore
CN03 Moheli

CF CONGO
CF01 Bouenza
CF12 Brazzaville
CF03 Cuvette
CF04 Kouilou
CF05 Lekoumou
CF06 Likouala
CF07 Niari
CF08 Plateaux
CF11 Pool
CF10 Sangha

CW COOK ISLANDS
CR CORAL SEA ISLANDS

CS COSTA RICA
CS01 Alajuela
CS02 Cartago
CS03 Guanacaste
CS04 Heredia
CS06 Limon
CS07 Puntarenas
CS08 San Jose

IV COTE D'IVOIRE
IV01 Abengourou
IV35 Abidjan
IV04 Aboisso
IV05 Adzope
IV06 Agboville
IV36 Bangolo
IV37 Beoumi
IV07 Biankouma
IV38 Bondoukou
IV27 Bongouanou
IV39 Bouafle
IV40 Bouake
IV11 Bouna
IV12 Boundiali
IV03 Dabakala
IV41 Daloa
IV14 Danane
IV42 Daoukro

IV43 Dimbokro
IV16 Divo
IV44 Duekoue
IV17 Ferkessedougou
IV18 Gagnoa
IV45 Grand-Lahou
IV46 Guiglo
IV28 Issia
IV20 Katiola
IV21 Korhogo
IV29 Lakota
IV47 Man
IV30 Mankono
IV48 Mbahiakro
IV23 Odienne
IV31 Oume
IV49 Sakassou
IV50 San Pedro
IV51 Sassandra
IV25 Seguela
IV52 Sinfra
IV32 Soubre
IV53 Tabou
IV54 Tanda
IV55 Tiassale
IV33 Tingrela
IV26 Touba
IV56 Toumodi
IV57 Vavoua
IV58 Yamoussoukro
IV34 Zuenoula

HR CROATIA

CU CUBA
CU05 Camaguey
CU07 Ciego de Avila
CU08 Cienfuegos
CU02 Ciudad de la Habana
CU09 Granma
CU10 Guantanamo
CU12 Holguin
CU04 Isla de la Juventud
CU11 La Habana
CU13 Las Tunas
CU03 Matanzas
CU01 Pinar del Rio
CU14 Sancti Spiritus
CU15 Santiago de Cuba
CU16 Villa Clara

CY CYPRUS
CY01 Famagusta
CY02 Kyrenia
CY03 Larnaca
CY05 Limassol
CY04 Nicosia
CY06 Paphos

* EZ CZECH REPUBLIC

* DA DENMARK
DA01 Arhus
DA02 Bornholm
DA03 Frederiksborg
DA04 Fyn
DA05 Kobenhavn
DA07 Nordjylland
DA08 Ribe
DA09 Ringkobing
DA10 Roskilde
DA11 Sonderjylland
DA06 Staden Kobenhavn
DA12 Storstrom
DA13 Vejle
DA14 Vestsjalland
DA15 Viborg

DJ DJIBOUTI
DJ01 `Ali Sabih
DJ02 Dikhil
DJ03 Djibouti
DJ04 Obock
DJ05 Tadjoura

DO DOMINICA
DO02 Saint Andrew
DO03 Saint David
DO04 Saint George
DO05 Saint John
DO06 Saint Joseph
DO07 Saint Luke
DO08 Saint Mark
DO09 Saint Patrick
DO10 Saint Paul
DO11 Saint Peter

DR DOMINICAN REPUBLIC
DR01 Azua
DR02 Baoruco
DR03 Barahona
DR04 Dajabon
DR05 Distrito Nacional
DR06 Duarte
DR11 Elias Pina
DR28 El Seibo
DR08 Espaillat
DR29 Hato Mayor
DR09 Independencia
DR10 La Altagracia
DR12 La Romana
DR30 La Vega
DR14 Maria Trinidad Sanchez
DR31 Monsenor Nouel
DR15 Monte Cristi
DR32 Monte Plata
DR16 Pedernales
DR17 Peravia
DR18 Puerto Plata
DR19 Salcedo
DR20 Samana
DR21 Sanchez Ramirez
DR33 San Cristobal
DR23 San Juan
DR24 San Pedro De Macoris
DR25 Santiago
DR26 Santiago Rodriguez
DR27 Valverde

EC ECUADOR
EC02 Azuay
EC03 Bolivar
EC04 Canar
EC05 Carchi
EC06 Chimborazo
EC07 Cotopaxi
EC08 El Oro
EC09 Esmeraldas
EC01 Galapagos
EC10 Guayas
EC11 Imbabura
EC12 Loja
EC13 Los Rios
EC14 Manabi
EC15 Morona-Santiago
EC21 Napo
EC17 Pastaza
EC18 Pichincha
EC22 Sucumbios
EC19 Tungurahua
EC20 Zamora-Chinchipe

* EG EGYPT
EG01 Ad Daqahliyah
EG02 Al Bahr al Ahmar
EG03 Al Buhayrah
EG04 Al Fayyum
EG05 Al Gharbiyah
EG06 Al Iskandariyah

EG07 Al Isma'iliyah
EG08 Al Jizah
EG09 Al Minufiyah
EG10 Al Minya
EG11 Al Qahirah
EG12 Al Qalyubiyah
EG13 Al Wadi al Jadid
EG14 Ash Sharqiyah
EG15 As Suways
EG16 Aswan
EG17 Asyut
EG18 Bani Suwayf
EG19 Bur Sa'id
EG20 Dumyat
EG26 Janub Sina'
EG21 Kafr ash Shaykh
EG22 Matruh
EG23 Qina
EG27 Shamal Sina'
EG24 Suhaj

ES EL SALVADOR
ES01 Ahuachapan
ES02 Cabanas
ES03 Chalatenango
ES04 Cuscatlan
ES05 La Libertad
ES06 La Paz
ES07 La Union
ES08 Morazan
ES09 San Miguel
ES10 San Salvador
ES11 Santa Ana
ES12 San Vicente
ES13 Sonsonate
ES14 Usulutan

EK EQUATORIAL GUINEA
EK03 Annobon
EK04 Bioko Norte
EK05 Bioko Sur
EK06 Centro Sur
EK07 Kie-Ntem
EK08 Litoral
EK09 Wele-Nzas

ER ERITREA

EN ESTONIA
EN01 Harjumaa
EN02 Hiiumaa
EN03 Ida-Virumaa
EN04 Jarvamaa
EN05 Jogevamaa
EN06 Kohtla-Jarve
EN07 Laanemaa
EN08 Laane-Virumaa
EN09 Narva
EN10 Parnu
EN11 Parnumaa
EN12 Polvamaa
EN13 Raplamaa
EN14 Saaremaa
EN15 Sillamae
EN16 Tallinn
EN17 Tartu
EN18 Tartumaa
EN19 Valgamaa
EN20 Viljandimaa
EN21 Vorumaa

ET ETHIOPIA
ET15 Adis Abeba
ET01 Arsi
ET17 Asosa
ET38 Bale
ET18 Borena
ET19 Debub Gonder
ET20 Debub Shewa
ET21 Debub Welo
ET22 Dire Dawa
ET23 Gambela
ET39 Gamo Gofa
ET40 Ilubabor
ET41 Kefa
ET24 Metekel
ET25 Mirab Gojam
ET26 Mirab Harerge
ET27 Mirab Shewa
ET28 Misrak Gojam
ET29 Misrak Harerge
ET30 Nazret
ET31 Ogaden
ET32 Omo
ET33 Semen Gonder
ET34 Semen Shewa
ET35 Semen Welo
ET42 Sidamo
ET37 Tigray
ET43 Welega

EU EUROPA ISLAND

FK FALKLAND ISLANDS (ISLAS MALVINAS)

FO FAROE ISLANDS

FM FEDERATED STATES OF MICRONESIA
FM03 Chuuk
FM01 Kosrae
FM02 Pohnpei
FM04 Yap

FJ FIJI
FJ01 Central
FJ02 Eastern
FJ03 Northern
FJ04 Rotuma
FJ05 Western

* FI FINLAND
FI01 Ahvenanmaa
FI02 Hame
FI03 Keski-Suomi
FI04 Kuopio
FI05 Kymi
FI06 Lappi
FI07 Mikkeli
FI08 Oulu
FI09 Pohjois-Karjala
FI10 Turku ja Pori
FI11 Uusimaa
FI12 Vaasa

* FR FRANCE
FRC1 Alsace
FR97 Aquitaine
FR98 Auvergne
FR99 Basse-Normandie
FRA1 Bourgogne
FRA2 Bretagne
FRA3 Centre
FRA4 Champagne-Ardenne
FRA5 Corse
FRA6 Franche-Comte
FRA7 Haute-Normandie
FRA8 Ile-de-France
FRA9 Languedoc-Roussillon
FRB1 Limousin
FRB2 Lorraine
FRB3 Midi-Pyrenees
FRB4 Nord-Pas-de-Calais
FRB5 Pays de la Loire
FRB6 Picardie
FRB7 Poitou-Charentes
FRB8 Provence-Alpes-Cote d'Azur

FRB9 Rhone-Alpes

FG FRENCH GUIANA

FP FRENCH POLYNESIA

FS FRENCH SOUTHERN AND ANTARCTIC LANDS

GB GABON
GB01 Estuaire
GB02 Haut-Ogooue
GB03 Moyen-Ogooue
GB04 Ngounie
GB05 Nyanga
GB06 Ogooue-Ivindo
GB07 Ogooue-Lolo
GB08 Ogooue-Maritime
GB09 Woleu-Ntem

GA GAMBIA, THE
GA01 Banjul
GA02 Lower River
GA03 MacCarthy Island
GA07 North Bank
GA04 Upper River
GA05 Western

GZ GAZA STRIP

GG GEORGIA

***** GM GERMANY
GM01 Baden-Wurttemberg
GM02 Bayern
GM16 Berlin
GM11 Brandenburg
GM03 Bremen
GM04 Hamburg
GM05 Hessen
GM12 Mecklenburg-Vorpommern
GM06 Niedersachsen
GM07 Nordrhein-Westfalen
GM08 Rheinland-Pfalz
GM09 Saarland
GM13 Sachsen
GM14 Sachsen-Anhalt
GM10 Schleswig-Holstein
GM15 Thuringen

* GH GHANA
GH02 Ashanti
GH03 Brong-Ahafo
GH04 Central
GH05 Eastern
GH01 Greater Accra
GH06 Northern
GH10 Upper East
GH11 Upper West
GH08 Volta
GH09 Western

GI GIBRALTAR

GO GLORIOSO ISLANDS

GR GREECE
GR31 Aitolia kai Akarnania
GR38 Akhaia
GR36 Argolis
GR41 Arkadhia
GR20 Arta
GR35 Attiki
GR47 Dhodhekanisos
GR04 Drama
GR30 Evritania
GR01 Evros
GR34 Evvoia
GR08 Florina
GR32 Fokis
GR29 Fthiotis
GR10 Grevena
GR39 Ilia
GR12 Imathia
GR17 Ioannina
GR45 Iraklion
GR23 Kardhitsa
GR09 Kastoria
GR14 Kavala
GR27 Kefallinia
GR25 Kerkira
GR15 Khalkidhiki
GR43 Khania
GR50 Khios
GR49 Kikladhes
GR06 Kilkis
GR37 Korinthia
GR11 Kozani
GR42 Lakonia
GR21 Larisa
GR46 Lasithi
GR51 Lesvos
GR26 Levkas
GR24 Magnisia
GR40 Messinia
GR07 Pella
GR16 Pieria
GR19 Preveza
GR44 Rethimni
GR02 Rodhopi
GR48 Samos
GR05 Serrai
GR18 Thesprotia
GR13 Thessaloniki
GR22 Trikala
GR33 Voiotia
GR03 Xanthi
GR28 Zakinthos

GL GREENLAND
GL01 Nordgronland
GL02 Ostgronland
GL03 Vestgronland

GJ GRENADA
GJ01 Saint Andrew
GJ02 Saint David
GJ03 Saint George
GJ04 Saint John
GJ05 Saint Mark
GJ06 Saint Patrick

GP GUADELOUPE

GQ GUAM

GT GUATEMALA
GT01 Alta Verapaz
GT02 Baja Verapaz
GT03 Chimaltenango
GT04 Chiquimula
GT05 El Progreso
GT06 Escuintla
GT07 Guatemala
GT08 Huehuetenango
GT09 Izabal
GT10 Jalapa
GT11 Jutiapa
GT12 Peten
GT14 Quiche
GT13 Quetzaltenango
GT15 Retalhuleu
GT16 Sacatepequez
GT17 San Marcos
GT18 Santa Rosa
GT19 Solola
GT20 Suchitepequez
GT21 Totonicapan

GT22 Zacapa

GK GUERNSEY

GV GUINEA
GV01 Beyla
GV02 Boffa
GV03 Boke
GV04 Conakry
GV05 Dabola
GV06 Dalaba
GV07 Dinguiraye
GV08 Dubreka
GV09 Faranah
GV10 Forecariah
GV11 Fria
GV12 Gaoual
GV13 Gueckedou
GV14 Kankan
GV15 Kerouane
GV16 Kindia
GV17 Kissidougou
GV18 Koundara
GV19 Kouroussa
GV20 Labe
GV21 Macenta
GV22 Mali
GV23 Mamou
GV24 Nzerekore
GV25 Pita
GV26 Siguiri
GV27 Telimele
GV28 Tougue
GV29 Yomou

PU GUINEA-BISSAU
PU01 Bafata
PU12 Biombo
PU11 Bissau
PU05 Bolama
PU06 Cacheu
PU10 Gabu
PU04 Oio
PU02 Quinara
PU07 Tombali

GY GUYANA
GY10 Barima-Waini
GY11 Cuyuni-Mazaruni
GY12 Demerara-Mahaica
GY13 East Berbice-Corentyne
GY14 Essequibo Islands-West Demerara
GY15 Mahaica-Berbice
GY16 Pomeroon-Supenaam
GY17 Potaro-Siparuni
GY18 Upper Demerara-Berbice
GY19 Upper Takutu-Upper Essequibo

HA HAITI
HA06 Artibonite
HA07 Centre
HA08 Grand' Anse
HA09 Nord
HA10 Nord-Est
HA03 Nord-Ouest
HA11 Ouest
HA12 Sud
HA13 Sud-Est

HM HEARD ISLAND AND MCDONALD ISLANDS

HO HONDURAS
HO01 Atlantida
HO02 Choluteca
HO03 Colon
HO04 Comayagua
HO05 Copan
HO06 Cortes
HO07 El Paraiso
HO08 Francisco Morazan
HO09 Gracias a Dios
HO10 Intibuca
HO11 Islas de la Bahia
HO12 La Paz
HO13 Lempira
HO14 Ocotepeque
HO15 Olancho
HO16 Santa Barbara
HO17 Valle
HO18 Yoro

HK HONG KONG

HQ HOWLAND ISLAND

* HU HUNGARY
HU01 Bacs-Kiskun
HU02 Baranya
HU03 Bekes
HU26 Bekescsaba
HU04 Borsod-Abauj-Zemplen
HU05 Budapest
HU06 Csongrad
HU07 Debrecen
HU27 Dunaujvaros
HU28 Eger
HU08 Fejer
HU25 Gyor
HU09 Gyor-Moson-Sopron
HU10 Hajdu-Bihar
HU11 Heves
HU29 Hodmezovasarhely
HU20 Jasz-Nagykun-Szolnok
HU30 Kaposvar
HU31 Kecskemet
HU12 Komarom-Esztergom
HU13 Miskolc
HU32 Nagykanizsa
HU14 Nograd
HU33 Nyiregyhaza
HU15 Pecs
HU16 Pest
HU17 Somogy
HU34 Sopron
HU18 Szabolcs-Szatmar-Bereg
HU19 Szeged
HU35 Szekesfehervar
HU36 Szolnok
HU37 Szombathely
HU38 Tatabanya
HU21 Tolna
HU22 Vas
HU23 Veszprem
HU39 Veszprem
HU24 Zala
HU40 Zalaegerszeg

IC ICELAND
IC01 Akranes
IC02 Akureyri
IC03 Arnessysla
IC04 Austur-Bardastrandarsysla
IC05 Austur-Hunavatnssysla
IC06 Austur-Skaftafellssysla
IC07 Borgarfjardarsysla
IC08 Dalasysla
IC09 Eyjafjardarsysla
IC10 Gullbringusysla
IC11 Hafnarfjordur
IC12 Husavik
IC13 Isafjordur
IC14 Keflavik
IC15 Kjosarsysla
IC16 Kopavogur
IC17 Myrasysla
IC18 Neskaupstadur

IC19 Nordur-Isafjardarsysla
IC20 Nordur-Mulasysla
IC21 Nordur-Tingeyjarsysla
IC22 Olafsfjordur
IC23 Rangarvallasysla
IC24 Reykjavik
IC25 Saudarkrokur
IC26 Seydisfjordur
IC27 Siglufjordur
IC28 Skagafjardarsysla
IC29 Snafellsnes- og Hnappadalssysla
IC30 Strandasysla
IC31 Sudur-Mulasysla
IC32 Sudur-Tingeyjarsysla
IC33 Vestmannaeyjar
IC34 Vestur-Bardastrandarsysla
IC35 Vestur-Hunavatnssysla
IC36 Vestur-Isafjardarsysla
IC37 Vestur-Skaftafellssysla

* IN INDIA
IN01 Andaman and Nicobar Islands
IN02 Andhra Pradesh
IN30 Arunachal Pradesh
IN03 Assam
IN04 Bihar
IN05 Chandigarh
IN06 Dadra and Nagar Haveli
IN32 Daman and Diu
IN07 Delhi
IN33 Goa
IN09 Gujarat
IN10 Haryana
IN11 Himachal Pradesh
IN12 Jammu and Kashmir
IN19 Karnataka
IN13 Kerala
IN14 Lakshadweep
IN15 Madhya Pradesh
IN16 Maharashtra
IN17 Manipur
IN18 Meghalaya
IN31 Mizoram
IN20 Nagaland
IN21 Orissa
IN22 Pondicherry
IN23 Punjab
IN24 Rajasthan
IN29 Sikkim
IN25 Tamil Nadu
IN26 Tripura
IN27 Uttar Pradesh
IN28 West Bengal

ID INDONESIA
ID01 Aceh
ID02 Bali
ID03 Bengkulu
ID09 Irian Jaya
ID04 Jakarta Raya
ID05 Jambi
ID06 Jawa Barat
ID07 Jawa Tengah
ID08 Jawa Timur
ID11 Kalimantan Barat
ID12 Kalimantan Selatan
ID13 Kalimantan Tengah
ID14 Kalimantan Timur
ID15 Lampung
ID16 Maluku
ID17 Nusa Tenggara Barat
ID18 Nusa Tenggara Timur
ID19 Riau
ID20 Sulawesi Selatan
ID21 Sulawesi Tengah
ID22 Sulawesi Tenggara
ID23 Sulawesi Utara
ID24 Sumatera Barat
ID25 Sumatera Selatan
ID26 Sumatera Utara
ID27 Timor Timur
ID10 Yogyakarta

* IR IRAN
IR01 Azarbayjan-e Bakhtari
IR02 Azarbayjan-e Khavari
IR13 Bakhtaran
IR22 Bushehr
IR03 Chahar Mahall va Bakhtiari
IR28 Esfahan
IR07 Fars
IR08 Gilan
IR09 Hamadan
IR11 Hormozgan
IR10 Ilam
IR29 Kerman
IR30 Khorasan
IR15 Khuzestan
IR05 Kohkiluyeh va Buyer Ahmadi
IR16 Kordestan
IR23 Lorestan
IR24 Markazi
IR17 Mazandaran
IR25 Semnan
IR04 Sistan va Baluchestan
IR26 Tehran
IR31 Yazd
IR27 Zanjan

IZ IRAQ
IZ01 Al Anbar
IZ02 Al Basrah
IZ03 Al Muthanna
IZ04 Al Qadisiyah
IZ17 An Najaf
IZ11 Arbil
IZ05 As Sulaymaniyah
IZ13 At Ta'mim
IZ06 Babil
IZ07 Baghdad
IZ08 Dahuk
IZ09 Dhi Qar
IZ10 Diyala
IZ12 Karbala'
IZ14 Maysan
IZ15 Ninawa
IZ18 Salah ad Din
IZ16 Wasit

EI IRELAND
EI01 Carlow
EI02 Cavan
EI03 Clare
EI04 Cork
EI06 Donegal
EI07 Dublin
EI10 Galway
EI11 Kerry
EI12 Kildare
EI13 Kilkenny
EI15 Laois
EI14 Leitrim
EI16 Limerick
EI18 Longford
EI19 Louth
EI20 Mayo
EI21 Meath
EI22 Monaghan
EI23 Offaly
EI24 Roscommon
EI25 Sligo
EI26 Tipperary
EI27 Waterford
EI29 Westmeath
EI30 Wexford
EI31 Wicklow

* IS ISRAEL
IS01 HaDarom
IS02 HaMerkaz
IS03 HaZafon
IS04 Hefa
IS05 Tel Aviv
IS06 Yerushalayim

* IT ITALY
IT01 Abruzzi
IT02 Basilicata
IT03 Calabria
IT04 Campania
IT05 Emilia-Romagna
IT06 Friuli-Venezia Giulia
IT07 Lazio
IT08 Liguria
IT09 Lombardia
IT10 Marche
IT11 Molise
IT12 Piemonte
IT13 Puglia
IT14 Sardegna
IT15 Sicilia
IT16 Toscana
IT17 Trentino-Alto Adige
IT18 Umbria
IT19 Valle d'Aosta
IT20 Veneto

* JM JAMAICA
JM01 Clarendon
JM02 Hanover
JM17 Kingston
JM04 Manchester
JM07 Portland
JM08 Saint Andrew
JM09 Saint Ann
JM10 Saint Catherine
JM11 Saint Elizabeth
JM12 Saint James
JM13 Saint Mary
JM14 Saint Thomas
JM15 Trelawny
JM16 Westmoreland

JN JAN MAYEN

* JA JAPAN
JA01 Aichi
JA02 Akita
JA03 Aomori
JA04 Chiba
JA05 Ehime
JA06 Fukui
JA07 Fukuoka
JA08 Fukushima
JA09 Gifu
JA10 Gumma
JA11 Hiroshima
JA12 Hokkaido
JA13 Hyogo
JA14 Ibaraki
JA15 Ishikawa
JA16 Iwate
JA17 Kagawa
JA18 Kagoshima
JA19 Kanagawa
JA20 Kochi
JA21 Kumamoto
JA22 Kyoto
JA23 Mie
JA24 Miyagi
JA25 Miyazaki
JA26 Nagano
JA27 Nagasaki
JA28 Nara
JA29 Niigata
JA30 Oita
JA31 Okayama
JA47 Okinawa
JA32 Osaka
JA33 Saga
JA34 Saitama
JA35 Shiga
JA36 Shimane
JA37 Shizuoka
JA38 Tochigi
JA39 Tokushima
JA40 Tokyo
JA41 Tottori
JA42 Toyama
JA43 Wakayama
JA44 Yamagata
JA45 Yamaguchi
JA46 Yamanashi

DQ JARVIS ISLAND

JE JERSEY

JQ JOHNSTON ATOLL

JO JORDAN
JO02 Al Balqa'
JO09 Al Karak
JO10 Al Mafraq
JO11 `Amman
JO12 At Tafilah
JO13 Az Zarqa
JO14 Irbid
JO07 Ma`an

JU JUAN DE NOVA ISLAND

KZ KAZAKHSTAN

KE KENYA
KE01 Central
KE02 Coast
KE03 Eastern
KE05 Nairobi Area
KE06 North-Eastern
KE07 Nyanza
KE08 Rift Valley
KE09 Western

KQ KINGMAN REEF

KR KIRIBATI
KR01 Gilbert Islands
KR02 Line Islands
KR03 Phoenix Islands

KN KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF
KN01 Chagang-do
KN16 Hamgyong-bukto
KN03 Hamgyong-namdo
KN07 Hwanghae-bukto
KN06 Hwanghae-namdo
KN08 Kaesong-si
KN09 Kangwon-do
KN14 Namp'o-si
KN11 P'yongan-bukto
KN15 P'yongan-namdo
KN12 P'yongyang-si
KN13 Yanggang-do

* KS KOREA, REPUBLIC OF
KS01 Cheju-do
KS03 Cholla-bukto
KS16 Cholla-namdo
KS05 Ch'ungch'ong-bukto
KS17 Ch'ungch'ong-namdo
KS12 Inch'on-jikhalsi
KS06 Kangwon-do
KS18 Kwangju-jikhalsi
KS13 Kyonggi-do

KS14 Kyongsang-bukto
KS08 Kyongsang-namdo
KS10 Pusan-jikhalsi
KS11 Soul-t'ukpyolsi
KS15 Taegu-jikhalsi
KS19 Taejon-jikhalsi

KU KUWAIT
KU01 Al Ahmadi
KU02 Al Kuwayt
KU03 Hawalli

KG KYRGYZSTAN

LA LAOS
LA01 Attapu
LA02 Champasak
LA03 Houaphan
LA04 Khammouan
LA05 Louang Namtha
LA06 Louangphrabang
LA07 Oudomxai
LA08 Phongsali
LA09 Saravan
LA10 Savannakhet
LA11 Vientiane
LA13 Xaignabouri
LA14 Xiangkhoang

LG LATVIA

LE LEBANON
Al Biqa`
Al Janub
Ash Shamal
Bayrut
Jabal Lubnan

LT LESOTHO
LT10 Berea
LT11 Butha-Buthe
LT12 Leribe
LT13 Mafeteng
LT14 Maseru
LT15 Mohales Hoek
LT16 Mokhotlong
LT17 Qachas Nek
LT18 Quthing
LT19 Thaba-Tseka

LI LIBERIA
LI01 Bong
LI03 Grand Bassa
LI04 Grand Cape Mount
LI02 Grand Jide
LI05 Lofa
LI06 Maryland
LI07 Monrovia
LI08 Montserrado
LI09 Nimba
LI10 Sino

LY LIBYA
LY47 Ajdabiya
LY03 Al `Aziziyah
LY48 Al Fatih
LY49 Al Jabal al Akhdar
LY05 Al Jufrah
LY50 Al Khums
LY08 Al Kufrah
LY51 An Nuqat al Khams
LY13 Ash Shati'
LY52 Awbari
LY53 Az Zawiyah
LY54 Banghazi
LY55 Darnah
LY56 Ghadamis
LY57 Gharyan
LY58 Misratah
LY30 Murzuq
LY34 Sabha
LY59 Sawfajjin
LY60 Surt
LY61 Tarabulus
LY41 Tarhunah
LY42 Tubruq
LY62 Yafran
LY45 Zlitan

LS LIECHTENSTEIN
LS01 Balzers
LS02 Eschen
LS03 Gamprin
LS04 Mauren
LS05 Planken
LS06 Ruggell
LS07 Schaan
LS08 Schellenberg
LS09 Triesen
LS10 Triesenberg
LS11 Vaduz

LH LITHUANIA

LU LUXEMBOURG
LU01 Diekirch
LU02 Grevenmacher
LU03 Luxembourg

MC MACAU
MC01 Ilhas
MC02 Macau

MK MACEDONIA

MA MADAGASCAR
MA05 Antananarivo
MA01 Antsiranana
MA02 Fianarantsoa
MA03 Mahajanga
MA04 Toamasina
MA06 Toliara

MI MALAWI
MI24 Blantyre
MI02 Chikwawa
MI03 Chiradzulu
MI04 Chitipa
MI06 Dedza
MI07 Dowa
MI08 Karonga
MI09 Kasungu
MI11 Lilongwe
MI10 Machinga
MI12 Mangochi
MI13 Mchinji
MI14 Mulanje
MI25 Mwanza
MI15 Mzimba
MI17 Nkhata Bay
MI18 Nkhotakota
MI19 Nsanje
MI16 Ntcheu
MI20 Ntchisi
MI21 Rumphi
MI22 Salima
MI05 Thyolo
MI23 Zomba

* MY MALAYSIA
MY01 Johor
MY02 Kedah
MY03 Kelantan
MY15 Labuan
MY04 Melaka
MY05 Negeri Sembilan
MY06 Pahang
MY07 Perak
MY08 Perlis

MY09 Pulau Pinang
MY16 Sabah
MY11 Sarawak
MY12 Selangor
MY13 Terengganu
MY14 Wilayah Persekutuan

MV MALDIVES
MV02 Aliff
MV20 Baa
MV17 Daalu
MV14 Faafu
MV27 Gaafu Aliff
MV28 Gaafu Daalu
MV07 Haa Aliff
MV23 Haa Daalu
MV26 Kaafu
MV05 Laamu
MV03 Laviyani
MV12 Meemu
MV29 Naviyani
MV25 Noonu
MV13 Raa
MV01 Seenu
MV24 Shaviyani
MV08 Thaa
MV04 Waavu

ML MALI
ML01 Bamako
ML02 Gao
ML03 Kayes
ML07 Koulikoro
ML04 Mopti
ML05 Segou
ML06 Sikasso
ML08 Tombouctou

MT MALTA

IM MAN, ISLE OF

RM MARSHALL ISLANDS

* MB MARTINIQUE

MR MAURITANIA
MR07 Adrar
MR03 Assaba
MR05 Brakna
MR08 Dakhlet Nouadhibou
MR04 Gorgol
MR10 Guidimaka
MR01 Hodh Ech Chargui
MR02 Hodh El Gharbi
MR12 Inchiri
MR09 Tagant
MR11 Tiris Zemmour
MR06 Trarza

MP MAURITIUS
MP21 Agalega Islands
MP12 Black River
MP22 Cargados Carajos
MP13 Flacq
MP14 Grand Port
MP15 Moka
MP16 Pamplemousses
MP17 Plaines Wilhems
MP18 Port Louis
MP19 Riviere du Rempart
MP23 Rodrigues
MP20 Savanne

MF MAYOTTE

* MX MEXICO
MX01 Aguascalientes
MX02 Baja California
MX03 Baja California Sur
MX04 Campeche
MX05 Chiapas
MX06 Chihuahua
MX07 Coahuila de Zaragoza
MX08 Colima
MX09 Distrito Federal
MX10 Durango
MX11 Guanajuato
MX12 Guerrero
MX13 Hidalgo
MX14 Jalisco
MX15 Mexico
MX16 Michoacan de Ocampo
MX17 Morelos
MX18 Nayarit
MX19 Nuevo Leon
MX20 Oaxaca
MX21 Puebla
MX22 Queretaro de Arteaga
MX23 Quintana Roo
MX24 San Luis Potosi
MX25 Sinaloa
MX26 Sonora
MX27 Tabasco
MX28 Tamaulipas
MX29 Tlaxcala
MX30 Veracruz-Llave
MX31 Yucatan
MX32 Zacatecas

MQ MIDWAY ISLANDS

MD MOLDOVA

MN MONACO
MN01 La Condamine
MN02 Monaco
MN03 Monte-Carlo

MG MONGOLIA
MG01 Arhangay
MG02 Bayanhongor
MG03 Bayan-Olgiy
MG21 Bulgan
MG05 Darhan
MG06 Dornod
MG07 Dornogovi
MG08 Dundgovi
MG09 Dzavhan
MG22 Erdenet
MG10 Govi-Altay
MG11 Hentiy
MG12 Hovd
MG13 Hovsgol
MG14 Omnogovi
MG15 Ovorhangay
MG16 Selenge
MG17 Suhbaatar
MG18 Tov
MG20 Ulaanbaatar
MG19 Uvs

MW MONTENEGRO

MH MONTSERRAT
MH01 Saint Anthony
MH02 Saint Georges
MH03 Saint Peter

MO MOROCCO
MO01 Agadir
MO02 Al Hoceima
MO03 Azilal
MO05 Beni Mellal
MO04 Ben Slimane
MO06 Boulemane
MO07 Casablanca
MO08 Chaouen

MO09 El Jadida
MO10 El Kelaa des Srarhna
MO11 Er Rachidia
MO12 Essaouira
MO13 Fes
MO14 Figuig
MO33 Guelmim
MO34 Ifrane
MO15 Kenitra
MO16 Khemisset
MO17 Khenifra
MO18 Khouribga
MO35 Laayoune
MO41 Larache
MO19 Marrakech
MO20 Meknes
MO21 Nador
MO22 Ouarzazate
MO23 Oujda
MO24 Rabat-Sale
MO25 Safi
MO26 Settat
MO38 Sidi Kacem
MO27 Tanger
MO36 Tan-Tan
MO37 Taounate
MO39 Taroudannt
MO29 Tata
MO30 Taza
MO40 Tetouan
MO32 Tiznit

MZ MOZAMBIQUE
MZ01 Cabo Delgado
MZ02 Gaza
MZ03 Inhambane
MZ10 Manica
MZ04 Maputo
MZ06 Nampula
MZ07 Niassa
MZ05 Sofala
MZ08 Tete
MZ09 Zambezia

WA NAMIBIA
WA01 Bethanien
WA03 Boesmanland
WA02 Caprivi Oos
WA22 Damaraland
WA04 Gobabis
WA05 Grootfontein
WA23 Hereroland Oos
WA24 Hereroland Wes
WA06 Kaokoland
WA20 Karasburg
WA07 Karibib
WA25 Kavango
WA08 Keetmanshoop
WA09 Luderitz
WA10 Maltahohe
WA26 Mariental
WA27 Namaland
WA11 Okahandja
WA12 Omaruru
WA13 Otjiwarongo
WA14 Outjo
WA15 Owambo
WA16 Rehoboth
WA17 Swakopmund
WA18 Tsumeb
WA21 Windhoek

NR NAURU
NR01 Aiwo
NR02 Anabar
NR03 Anetan
NR04 Anibare
NR05 Baiti
NR06 Boe
NR07 Buada
NR08 Denigomodu
NR09 Ewa
NR10 Ijuw
NR11 Meneng
NR12 Nibok
NR13 Uaboe
NR14 Yaren

BQ NAVASSA ISLAND

NP NEPAL
NP01 Bagmati
NP02 Bheri
NP03 Dhawalagiri
NP04 Gandaki
NP05 Janakpur
NP06 Karnali
NP07 Kosi
NP08 Lumbini
NP09 Mahakali
NP10 Mechi
NP11 Narayani
NP12 Rapti
NP13 Sagarmatha
NP14 Seti

* NL NETHERLANDS
NL01 Drenthe
NL12 Dronten
NL02 Friesland
NL03 Gelderland
NL04 Groningen
NL14 Lelystad
NL05 Limburg
NL06 Noord-Brabant
NL07 Noord-Holland
NL08 Overijssel
NL09 Utrecht
NL10 Zeeland
NL13 Zuidelijke IJsselmeerpolders
NL11 Zuid-Holland

NT NETHERLANDS ANTILLES

NC NEW CALEDONIA

* NZ NEW ZEALAND
NZ01 Akaroa
NZ03 Amuri
NZ04 Ashburton
NZ07 Bay of Islands
NZ08 Bruce
NZ09 Buller
NZ10 Chatham Islands
NZ11 Cheviot
NZ12 Clifton
NZ13 Clutha
NZ14 Cook
NZ16 Dannevirke
NZ17 Egmont
NZ18 Eketahuna
NZ19 Ellesmere
NZ20 Eltham
NZ21 Eyre
NZ22 Featherston
NZ24 Franklin
NZ26 Golden Bay
NZ27 Great Barrier Island
NZ28 Grey
NZ29 Hauraki Plains
NZ30 Hawera
NZ31 Hawke's Bay
NZ32 Heathcote
NZD9 Hikurangi
NZ33 Hobson
NZ34 Hokianga
NZ35 Horowhenua
NZD4 Hurunui

NZ36 Hutt
NZ37 Inangahua
NZ38 Inglewood
NZ39 Kaikoura
NZ40 Kairanga
NZ41 Kiwitea
NZ43 Lake
NZ45 Mackenzie
NZ46 Malvern
NZE1 Manaia
NZ47 Manawatu
NZ48 Mangonui
NZ49 Maniototo
NZ50 Marlborough
NZ51 Masterton
NZ52 Matamata
NZ53 Mount Herbert
NZ54 Ohinemuri
NZ55 Opotiki
NZ56 Oroua
NZ57 Otamatea
NZ58 Otorohanga
NZ59 Oxford
NZ60 Pahiatua
NZ61 Paparua
NZ63 Patea
NZ65 Piako
NZ66 Pohangina
NZ67 Raglan
NZ68 Rangiora
NZ69 Rangitikei
NZ70 Rodney
NZ71 Rotorua
NZE2 Runanga
NZE3 Saint Kilda
NZD5 Silverpeaks
NZ72 Southland
NZ73 Stewart Island
NZ74 Stratford
NZD6 Strathallan
NZ76 Taranaki
NZ77 Taumarunui
NZ78 Taupo
NZ79 Tauranga
NZE4 Thames-Coromandel
NZ81 Tuapeka
NZ82 Vincent
NZ83 Waiapu
NZD8 Waiheke
NZ84 Waihemo
NZ85 Waikato
NZ86 Waikohu
NZ88 Waimairi
NZ89 Waimarino
NZ90 Waimate
NZ91 Waimate West
NZ92 Waimea
NZ93 Waipa
NZ95 Waipawa
NZ96 Waipukurau
NZ97 Wairarapa South
NZ98 Wairewa
NZ99 Wairoa
NZA4 Waitaki
NZA6 Waitomo
NZA8 Waitotara
NZE6 Wallace
NZB2 Wanganui
NZE5 Waverley
NZB3 Westland
NZB4 Whakatane
NZA1 Whangarei
NZA2 Whangaroa
NZA3 Woodville

NU NICARAGUA
NU01 Boaco
NU02 Carazo
NU03 Chinandega
NU04 Chontales
NU05 Esteli
NU06 Granada
NU07 Jinotega
NU08 Leon
NU09 Madriz
NU10 Managua
NU11 Masaya
NU12 Matagalpa
NU13 Nueva Segovia
NU14 Rio San Juan
NU15 Rivas
NU16 Zelaya

NG NIGER
NG01 Agadez
NG02 Diffa
NG03 Dosso
NG04 Maradi
NG05 Niamey
NG06 Tahoua
NG07 Zinder

NI NIGERIA
NI34 Abia
NI11 Abuja Capital Territory
NI35 Adamawa
NI21 Akwa Ibom
NI25 Anambra
NI06 Bauchi
NI26 Benue
NI27 Borno
NI22 Cross River
NI36 Delta
NI37 Edo
NI38 Enugu
NI28 Imo
NI39 Jigawa
NI23 Kaduna
NI29 Kano
NI24 Katsina
NI40 Kebbi
NI41 Kogi
NI30 Kwara
NI05 Lagos
NI31 Niger
NI16 Ogun
NI17 Ondo
NI42 Osun
NI32 Oyo
NI19 Plateau
NI10 Rivers
NI33 Sokoto
NI43 Taraba
NI44 Yobe

NE NIUE

NF NORFOLK ISLAND

CQ NORTHERN MARIANA ISLANDS

* NO NORWAY
NO01 Akershus
NO02 Aust-Agder
NO04 Buskerud
NO05 Finnmark
NO06 Hedmark
NO07 Hordaland
NO08 More og Romsdal
NO09 Nordland
NO10 Nord-Trondelag
NO11 Oppland
NO12 Oslo
NO13 Ostfold
NO14 Rogaland
NO15 Sogn og Fjordane
NO16 Sor-Trondelag
NO17 Telemark

NO18 Troms
NO19 Vest-Agder
NO20 Vestfold

MU OMAN

PK PAKISTAN
PK06 Azad Kashmir
PK02 Balochistan
PK01 Federally Administered Tribal Areas
PK08 Islamabad
PK07 Northern Areas
PK03 North-West Frontier
PK04 Punjab
PK05 Sindh

LQ PALMYRA ATOLL

* PM PANAMA
PM01 Bocas del Toro
PM02 Chiriqui
PM03 Cocle
PM04 Colon
PM05 Darien
PM06 Herrera
PM07 Los Santos
PM08 Panama
PM09 San Blas
PM10 Veraguas

PP PAPUA NEW GUINEA
PP01 Central
PP08 Chimbu
PP09 Eastern Highlands
PP10 East New Britain
PP11 East Sepik
PP19 Enga
PP02 Gulf
PP12 Madang
PP13 Manus
PP03 Milne Bay
PP14 Morobe
PP20 National Capital
PP15 New Ireland
PP04 Northern
PP07 North Solomons
PP18 Sandaun
PP05 Southern Highlands
PP06 Western
PP16 Western Highlands
PP17 West New Britain

PF PARACEL ISLANDS

PA PARAGUAY
PA18 Alto Paraguay
PA01 Alto Parana
PA02 Amambay
PA03 Boqueron
PA04 Caaguazu
PA05 Caazapa
PA19 Canindeyu
PA06 Central
PA20 Chaco
PA07 Concepcion
PA08 Cordillera
PA10 Guaira
PA11 Itapua
PA12 Misiones
PA13 Neembucu
PA21 Nueva Asuncion
PA15 Paraguari
PA16 Presidente Hayes
PA17 San Pedro

PE PERU
PE01 Amazonas
PE02 Ancash
PE03 Apurimac
PE04 Arequipa
PE05 Ayacucho
PE06 Cajamarca
PE07 Callao
PE08 Cusco
PE09 Huancavelica
PE10 Huanuco
PE11 Ica
PE12 Junin
PE13 La Libertad
PE14 Lambayeque
PE15 Lima
PE16 Loreto
PE17 Madre de Dios
PE18 Moquegua
PE19 Pasco
PE20 Piura
PE21 Puno
PE22 San Martin
PE23 Tacna
PE24 Tumbes
PE25 Ucayali

RP PHILIPPINES
RP01 Abra
RP02 Agusan del Norte
RP03 Agusan del Sur
RP04 Aklan
RP05 Albay
RPA1 Angeles
RP06 Antique
RPG8 Aurora
RPA2 Bacolod
RPA3 Bago
RPA4 Baguio
RPA5 Bais
RP22 Basilan
RPA6 Basilan City
RP07 Bataan
RP08 Batanes
RP09 Batangas
RPA7 Batangas City
RP10 Benguet
RP11 Bohol
RP12 Bukidnon
RP13 Bulacan
RPA8 Butuan
RPA9 Cabanatuan
RPB1 Cadiz
RP14 Cagayan
RPB2 Cagayan de Oro
RPB3 Calbayog
RPB4 Caloocan
RP15 Camarines Norte
RP16 Camarines Sur
RP17 Camiguin
RPB5 Canlaon
RP18 Capiz
RP19 Catanduanes
RP20 Cavite
RPB6 Cavite City
RP21 Cebu
RPB7 Cebu City
RPB8 Cotabato
RPB9 Dagupan
RPC1 Danao
RPC2 Dapitan
RP24 Davao
RPC3 Davao City
RP25 Davao del Sur
RP26 Davao Oriental
RPC4 Dipolog
RPC5 Dumaguete
RP23 Eastern Samar
RPC6 General Santos
RPC7 Gingoog
RP27 Ifugao
RPC8 Iligan
RP28 Ilocos Norte

RP29 Ilocos Sur
RP30 Iloilo
RPC9 Iloilo City
RPD1 Iriga
RP31 Isabela
RP32 Kalinga-Apayao
RPD2 La Carlota
RP33 Laguna
RP34 Lanao del Norte
RP35 Lanao del Sur
RPD3 Laoag
RPD4 Lapu-Lapu
RP36 La Union
RPD5 Legaspi
RP37 Leyte
RPD6 Lipa
RPD7 Lucena
RP56 Maguindanao
RPD8 Mandaue
RPD9 Manila
RPE1 Marawi
RP38 Marinduque
RP39 Masbate
RP40 Mindoro Occidental
RP41 Mindoro Oriental
RP42 Misamis Occidental
RP43 Misamis Oriental
RP44 Mountain
RPE2 Naga
RPH3 Negros Occidental
RP46 Negros Oriental
RP57 North Cotabato
RP67 Northern Samar
RP47 Nueva Ecija
RP48 Nueva Vizcaya
RPE3 Olongapo
RPE4 Ormoc
RPE5 Oroquieta
RPE6 Ozamis
RPE7 Pagadian
RP49 Palawan
RPE8 Palayan
RP50 Pampanga
RP51 Pangasinan
RPE9 Pasay
RPF1 Puerto Princesa
RPH2 Quezon
RPF2 Quezon City
RP68 Quirino
RP53 Rizal
RP54 Romblon
RPF3 Roxas
RP55 Samar
RPF4 San Carlos, Negros Occidental
RPF5 San Carlos, Pangasinan
RPF6 San Jose
RPF7 San Pablo
RPF8 Silay
RP69 Siquijor
RP58 Sorsogon
RP70 South Cotabato
RP59 Southern Leyte
RP71 Sultan Kudarat
RP60 Sulu
RPF9 Surigao
RP61 Surigao del Norte
RP62 Surigao del Sur
RPG1 Tacloban
RPG2 Tagaytay
RPG3 Tagbilaran
RPG4 Tangub
RP63 Tarlac
RP72 Tawitawi
RPG5 Toledo
RPG6 Trece Martires
RP64 Zambales
RPG7 Zamboanga
RP65 Zamboanga del Norte
RP66 Zamboanga del Sur

PC PITCAIRN ISLANDS

* PL POLAND
PL23 Biala Podlaska
PL24 Bialystok
PL25 Bielsko
PL26 Bydgoszcz
PL27 Chelm
PL28 Ciechanow
PL29 Czestochowa
PL30 Elblag
PL31 Gdansk
PL32 Gorzow
PL33 Jelenia Gora
PL34 Kalisz
PL35 Katowice
PL36 Kielce
PL37 Konin
PL38 Koszalin
PL39 Krakow
PL40 Krosno
PL41 Legnica
PL42 Leszno
PL43 Lodz
PL44 Lomza
PL45 Lublin
PL46 Nowy Sacz
PL47 Olsztyn
PL48 Opole
PL49 Ostroleka
PL50 Pila
PL51 Piotrkow
PL52 Plock
PL53 Poznan
PL54 Przemysl
PL55 Radom
PL56 Rzeszow
PL57 Siedlce
PL58 Sieradz
PL59 Skierniewice
PL60 Slupsk
PL61 Suwalki
PL62 Szczecin
PL63 Tarnobrzeg
PL64 Tarnow
PL65 Torun
PL66 Walbrzych
PL67 Warszawa
PL68 Wloclawek
PL69 Wroclaw
PL70 Zamosc
PL71 Zielona Gora

PO PORTUGAL
PO02 Aveiro
PO23 Azores
PO03 Beja
PO04 Braga
PO05 Braganca
PO06 Castelo Branco
PO07 Coimbra
PO08 Evora
PO09 Faro
PO11 Guarda
PO13 Leiria
PO14 Lisboa
PO10 Madeira
PO16 Portalegre
PO17 Porto
PO18 Santarem
PO19 Setubal
PO20 Viana do Castelo
PO21 Vila Real
PO22 Viseu

RQ PUERTO RICO

QA QATAR

RE REUNION

RO ROMANIA
RO01 Alba
RO02 Arad
RO03 Arges
RO04 Bacau
RO05 Bihor
RO06 Bistrita-Nasaud
RO07 Botosani
RO08 Braila
RO09 Brasov
RO10 Bucuresti
RO11 Buzau
RO41 Calarasi
RO12 Caras-Severin
RO13 Cluj
RO14 Constanta
RO15 Covasna
RO16 Dimbovita
RO17 Dolj
RO18 Galati
RO19 Gorj
RO42 Giurgiu
RO20 Harghita
RO21 Hunedoara
RO22 Ialomita
RO23 Iasi
RO25 Maramures
RO26 Mehedinti
RO27 Mures
RO28 Neamt
RO29 Olt
RO30 Prahova
RO31 Salaj
RO32 Satu Mare
RO33 Sibiu
RO34 Suceava
RO35 Teleorman
RO36 Timis
RO37 Tulcea
RO38 Vaslui
RO39 Vilcea
RO40 Vrancea

* RS RUSSIA

RW RWANDA
RW01 Butare
RW02 Byumba
RW03 Cyangugu
RW04 Gikongoro
RW05 Gisenyi
RW06 Gitarama
RW07 Kibungo
RW08 Kibuye
RW09 Kigali
RW10 Ruhengeri

SC ST. KITTS AND NEVIS
SC01 Christ Church Nichola Town
SC02 Saint Anne Sandy Point
SC03 Saint George Basseterre
SC04 Saint George Gingerland
SC05 Saint James Windward
SC06 Saint John Capisterre
SC07 Saint John Figtree
SC08 Saint Mary Cayon
SC09 Saint Paul Capisterre
SC10 Saint Paul Charlestown
SC11 Saint Peter Basseterre
SC12 Saint Thomas Lowland
SC13 Saint Thomas Middle Island
SC15 Trinity Palmetto Point

SH ST. HELENA
SH01 Ascension
SH02 Saint Helena
SH03 Tristan da Cunha

ST ST. LUCIA
ST01 Anse-la-Raye
ST03 Castries
ST04 Choiseul
ST02 Dauphin
ST05 Dennery
ST06 Gros-Islet
ST07 Laborie
ST08 Micoud
ST11 Praslin
ST09 Soufriere
ST10 Vieux-Fort

SB ST. PIERRE AND MIQUELON

VC ST. VINCENT AND THE GRENADINES
VC01 Charlotte
VC06 Grenadines
VC02 Saint Andrew
VC03 Saint David
VC04 Saint George
VC05 Saint Patrick

SM SAN MARINO
SM01 Acquaviva
SM06 Borgo Maggiore
SM02 Chiesanuova
SM03 Domagnano
SM04 Faetano
SM05 Fiorentino
SM08 Monte Giardino
SM07 San Marino
SM09 Serravalle

TP SAO TOME AND PRINCIPE
TP01 Principe
TP02 Sao Tome

SA SAUDI ARABIA
SA02 Al Bahah
SA15 Al Hudud ash Shamaliyah
SA03 Al Jawf
SA05 Al Madinah
SA08 Al Qasim
SA09 Al Qurayyat
SA10 Ar Riyad
SA06 Ash Sharqiyah
SA11 `Asir
SA13 Ha'il
SA17 Jizan
SA14 Makkah
SA16 Najran
SA19 Tabuk

SG SENEGAL
SG01 Dakar
SG03 Diourbel
SG09 Fatick
SG10 Kaolack
SG11 Kolda
SG08 Louga
SG04 Saint-Louis
SG05 Tambacounda
SG07 Thies
SG12 Ziguinchor

SR SERBIA

SE SEYCHELLES
SE01 Anse aux Pins
SE02 Anse Boileau
SE03 Anse Etoile
SE04 Anse Louis
SE05 Anse Royale
SE06 Baie Lazare
SE07 Baie Sainte Anne

SE08 Beau Vallon
SE09 Bel Air
SE10 Bel Ombre
SE11 Cascade
SE12 Glacis
SE13 Grand' Anse (Mahe)
SE14 Grand' Anse (Praslin)
SE15 La Digue
SE16 La Riviere Anglaise
SE17 Mont Buxton
SE18 Mont Fleuri
SE19 Plaisance
SE20 Pointe La Rue
SE21 Port Glaud
SE22 Saint Louis
SE23 Takamaka

SL SIERRA LEONE
SL01 Eastern
SL02 Northern
SL03 Southern
SL04 Western Area

SN SINGAPORE

* LO SLOVAKIA

* SI SLOVENIA

BP SOLOMON ISLANDS
BP05 Central
BP06 Guadalcanal
BP07 Isabel
BP08 Makira
BP03 Malaita
BP09 Temotu
BP04 Western

SO SOMALIA
SO01 Bakool
SO02 Banaadir
SO03 Bari
SO04 Bay
SO05 Galguduud
SO06 Gedo
SO07 Hiiraan
SO08 Jubbada Dhexe
SO09 Jubbada Hoose
SO10 Mudug
SO11 Nugaal
SO12 Sanaag
SO13 Shabeellaha Dhexe
SO14 Shabeellaha Hoose
SO15 Togdheer
SO16 Woqooyi Galbeed

SF SOUTH AFRICA
SF01 Cape Province
SF02 Natal
SF03 Orange Free State
SF04 Transvaal

SX SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS

* SP SPAIN
SP51 Andalucia
SP52 Aragon
SP34 Asturias
SP53 Canarias
SP39 Cantabria
SP54 Castilla-La Mancha
SP55 Castilla y Leon
SP56 Cataluna
SP57 Extremadura
SP58 Galicia
SP07 Islas Baleares
SP27 La Rioja
SP29 Madrid
SP31 Murcia
SP32 Navarra
SP59 Pais Vasco
SP60 Valenciana

PG SPRATLY ISLANDS

CE SRI LANKA
CE01 Amparai
CE02 Anuradhapura
CE03 Badulla
CE04 Batticaloa
CE23 Colombo
CE06 Galle
CE24 Gampaha
CE07 Hambantota
CE25 Jaffna
CE09 Kalutara
CE10 Kandy
CE11 Kegalla
CE12 Kurunegala
CE26 Mannar
CE14 Matale
CE15 Matara
CE16 Moneragala
CE27 Mullaittivu
CE17 Nuwara Eliya
CE18 Polonnaruwa
CE19 Puttalam
CE20 Ratnapura
CE21 Trincomalee
CE28 Vavuniya

SU SUDAN
SU26 A`ali an Nil
SU28 Al Istiwa'iyah
SU29 Al Khartum
SU27 Al Wusta
SU30 Ash Shamaliyah
SU31 Ash Sharqiyah
SU32 Bahr al Ghazal
SU33 Darfur
SU34 Kurdufan

NS SURINAME
NS10 Brokopondo
NS11 Commewijne
NS12 Coronie
NS13 Marowijne
NS14 Nickerie
NS15 Para
NS16 Paramaribo
NS17 Saramacca
NS18 Sipaliwini
NS19 Wanica

SV SVALBARD

WZ SWAZILAND
WZ01 Hhohho
WZ02 Lubombo
WZ03 Manzini
WZ05 Praslin
WZ04 Shiselweni

* SW SWEDEN
SW01 Alvsborgs Lan
SW02 Blekinge Lan
SW03 Gavleborgs Lan
SW04 Goteborgs och Bohus Lan
SW05 Gotlands Lan
SW06 Hallands Lan
SW07 Jamtlands Lan
SW08 Jonkopings Lan
SW09 Kalmar Lan
SW10 Kopparbergs Lan
SW11 Kristianstads Lan
SW12 Kronobergs Lan
SW13 Malmohus Lan

SW14 Norrbottens Lan
SW15 Orebro Lan
SW16 Ostergotlands Lan
SW17 Skaraborgs Lan
SW18 Sodermanlands Lan
SW26 Stockholms Lan
SW21 Uppsala Lan
SW22 Varmlands Lan
SW23 Vasterbottens Lan
SW24 Vasternorrlands Lan
SW25 Vastmanlands Lan

* SZ SWITZERLAND
SZ01 Aargau
SZ02 Ausser-Rhoden
SZ03 Basel-Landschaft
SZ04 Basel-Stadt
SZ05 Bern
SZ06 Fribourg
SZ07 Geneve
SZ08 Glarus
SZ09 Graubunden
SZ10 Inner-Rhoden
SZ26 Jura
SZ11 Luzern
SZ12 Neuchatel
SZ13 Nidwalden
SZ14 Obwalden
SZ15 Sankt Gallen
SZ16 Schaffhausen
SZ17 Schwyz
SZ18 Solothurn
SZ19 Thurgau
SZ20 Ticino
SZ21 Uri
SZ22 Valais
SZ23 Vaud
SZ24 Zug
SZ25 Zurich

SY SYRIA
SY01 Al Hasakah
SY02 Al Ladhiqiyah
SY03 Al Qunaytirah
SY04 Ar Raqqah
SY05 As Suwayda'
SY06 Dar`a
SY07 Dayr az Zawr
SY13 Dimashq
SY09 Halab
SY10 Hamah
SY11 Hims
SY12 Idlib
SY08 Rif Dimashq
SY14 Tartus

TI TAJIKISTAN

TZ TANZANIA
TZ01 Arusha
TZ23 Dar es Salaam
TZ03 Dodoma
TZ04 Iringa
TZ05 Kigoma
TZ06 Kilimanjaro
TZ07 Lindi
TZ08 Mara
TZ09 Mbeya
TZ10 Morogoro
TZ11 Mtwara
TZ12 Mwanza
TZ13 Pemba North
TZ20 Pemba South
TZ02 Pwani
TZ24 Rukwa
TZ14 Ruvuma
TZ15 Shinyanga
TZ16 Singida
TZ17 Tabora
TZ18 Tanga
TZ21 Zanzibar Central/South
TZ22 Zanzibar North
TZ25 Zanzibar Urban/West
TZ19 Ziwa Magharibi

TH THAILAND
TH35 Ang Thong
TH28 Buriram
TH44 Chachoengsao
TH32 Chai Nat
TH26 Chaiyaphum
TH48 Chanthaburi
TH02 Chiang Mai
TH03 Chiang Rai
TH46 Chon Buri
TH58 Chumphon
TH23 Kalasin
TH11 Kamphaeng Phet
TH50 Kanchanaburi
TH22 Khon Kaen
TH63 Krabi
TH40 Krung Thep
TH06 Lampang
TH05 Lamphun
TH18 Loei
TH34 Lop Buri
TH01 Mae Hong Son
TH24 Maha Sarakham
TH43 Nakhon Nayok
TH53 Nakhon Pathom
TH21 Nakhon Phanom
TH27 Nakhon Ratchasima
TH16 Nakhon Sawan
TH64 Nakhon Si Thammarat
TH04 Nan
TH31 Narathiwat
TH17 Nong Khai
TH38 Nonthaburi
TH39 Pathum Thani
TH69 Pattani
TH61 Phangnga
TH66 Phatthalung
TH41 Phayao
TH14 Phetchabun
TH56 Phetchaburi
TH13 Phichit
TH12 Phitsanulok
TH36 Phra Nakhon Si Ayutthaya
TH07 Phrae
TH62 Phuket
TH45 Prachin Buri
TH57 Prachuap Khiri Khan
TH59 Ranong
TH52 Ratchaburi
TH47 Rayong
TH25 Roi Et
TH20 Sakon Nakhon
TH42 Samut Prakan
TH55 Samut Sakhon
TH54 Samut Songkhram
TH37 Saraburi
TH67 Satun
TH33 Sing Buri
TH30 Sisaket
TH68 Songkhla
TH09 Sukhothai
TH51 Suphan Buri
TH60 Surat Thani
TH29 Surin
TH08 Tak
TH65 Trang
TH49 Trat
TH71 Ubon Ratchathani
TH19 Udon Thani
TH15 Uthai Thani
TH10 Uttaradit
TH70 Yala
TH72 Yasothon

TO TOGO
TO01 Amlame
TO02 Aneho
TO03 Atakpame
TO15 Badou
TO04 Bafilo
TO05 Bassar
TO06 Dapaong
TO07 Kante
TO08 Klouto
TO14 Kpagouda
TO09 Lama-Kara
TO10 Lome
TO11 Mango
TO12 Niamtougou
TO13 Notse
TO16 Sotouboua
TO17 Tabligbo
TO19 Tchamba
TO20 Tchaoudjo
TO18 Tsevie
TO21 Vogan

TL TOKELAU

TN TONGA
TN01 Ha`apai
TN02 Tongatapu
TN03 Vava`u

TD TRINIDAD AND TOBAGO
TD01 Arima
TD02 Caroni
TD03 Mayaro
TD04 Nariva
TD05 Port-of-Spain
TD06 Saint Andrew
TD07 Saint David
TD08 Saint George
TD09 Saint Patrick
TD10 San Fernando
TD11 Tobago
TD12 Victoria

TE TROMELIN ISLAND

PS TRUST TERRITORY OF THE PACIFIC ISLANDS (PALAU)

TS TUNISIA
TS14 Al Kaf
TS15 Al Mahdiyah
TS16 Al Munastir
TS02 Al Qasrayn
TS03 Al Qayrawan
TS26 Aryanah
TS17 Bajah
TS18 Banzart
TS27 Bin `Arus
TS06 Jundubah
TS28 Madanin
TS19 Nabul
TS29 Qabis
TS10 Qafsah
TS31 Qibili
TS32 Safaqis
TS33 Sidi Bu Zayd
TS22 Silyanah
TS23 Susah
TS34 Tatawin
TS35 Tawzar
TS36 Tunis
TS37 Zaghwan

TU TURKEY
TU01 Adana
TU02 Adiyaman
TU03 Afyon
TU04 Agri
TU75 Aksaray
TU05 Amasya
TU68 Ankara
TU07 Antalya
TU08 Artvin
TU09 Aydin
TU10 Balikesir
TU76 Batman
TU77 Bayburt
TU11 Bilecik
TU12 Bingol
TU13 Bitlis
TU14 Bolu
TU15 Burdur
TU16 Bursa
TU17 Canakkale
TU18 Cankiri
TU19 Corum
TU20 Denizli
TU21 Diyarbakir
TU22 Edirne
TU23 Elazig
TU24 Erzincan
TU25 Erzurum
TU26 Eskisehir
TU27 Gaziantep
TU28 Giresun
TU69 Gumushane
TU70 Hakkari
TU31 Hatay
TU32 Icel
TU33 Isparta
TU34 Istanbul
TU35 Izmir
TU46 Kahraman Maras
TU78 Karaman
TU36 Kars
TU37 Kastamonu
TU38 Kayseri
TU79 Kirikkale
TU39 Kirklareli
TU40 Kirsehir
TU41 Kocaeli
TU71 Konya
TU43 Kutahya
TU44 Malatya
TU45 Manisa
TU72 Mardin
TU48 Mugla
TU49 Mus
TU50 Nevsehir
TU73 Nigde
TU52 Ordu
TU53 Rize
TU54 Sakarya
TU55 Samsun
TU74 Siirt
TU57 Sinop
TU80 Sirnak
TU58 Sivas
TU59 Tekirdag
TU60 Tokat
TU61 Trabzon
TU62 Tunceli
TU63 Urfa
TU64 Usak
TU65 Van
TU66 Yozgat
TU67 Zonguldak

TX TURKMENISTAN

TK TURKS AND CAICOS ISLANDS

TV TUVALU

UG UGANDA
UG05 Busoga
UG18 Central

UG20 Eastern
UG08 Karamoja
UG21 Nile
UG22 North Buganda
UG23 Northern
UG12 South Buganda
UG24 Southern
UG25 Western

* UP UKRAINE
UP01 Cherkas'ka Oblast'
UP02 Chernihivs'ka Oblast'
UP03 Chernivets'ka Oblast'
UP04 Dnipropetrovs'ka Oblast'
UP05 Donets'ka Oblast'
UP06 Ivano-Frankivs'ka Oblast'
UP07 Kharkivs'ka Oblast'
UP08 Khersons'ka Oblast'
UP09 Khmel'nyts'ka Oblast'
UP10 Kirovohrads'ka Oblast'
UP11 Krym, Respublika
UP12 Kyyiv, Misto
UP13 Kyyivs'ka Oblast'
UP14 Luhans'ka Oblast'
UP15 L'vivs'ka Oblast'
UP16 Mykolayivs'ka Oblast'
UP17 Odes'ka Oblast'
UP18 Poltavs'ka Oblast'
UP19 Rivnens'ka Oblast'
UP20 Sevastopol', Misto
UP21 Sums'ka Oblast'
UP22 Ternopil's'ka Oblast'
UP23 Vinnyts'ka Oblast'
UP24 Volyns'ka Oblast'
UP25 Zakarpats'ka Oblast'
UP26 Zaporiz'ka Oblast'
UP27 Zhytomyrs'ka Oblast'

TC UNITED ARAB EMIRATES
TC01 Abu Zaby
TC02 `Ajman
TC04 Al Fujayrah
TC06 Ash Shariqah
TC03 Dubayy
TC05 Ra's al Khaymah
TC07 Umm al Qaywayn

* UK UNITED KINGDOM
UK01 Avon
UK02 Bedford
UK03 Berkshire
UK04 Buckingham
UK05 Cambridge
UK06 Cheshire
UK07 Cleveland
UK08 Cornwall
UK09 Cumbria
UK10 Derby
UK11 Devon
UK12 Dorset
UK13 Durham
UK14 East Sussex
UK15 Essex
UK16 Gloucester
UK17 Greater London
UK18 Greater Manchester
UK19 Hampshire
UK20 Hereford and Worcester
UK21 Hertford
UK22 Humberside
UK23 Isle of Wight
UK24 Kent
UK25 Lancashire
UK26 Leicester
UK27 Lincoln
UK28 Merseyside
UK29 Norfolk
UK31 Northampton
UK32 Northumberland
UK30 North Yorkshire
UK33 Nottingham
UK34 Oxford
UK35 Shropshire
UK36 Somerset
UK37 South Yorkshire
UK38 Stafford
UK39 Suffolk
UK40 Surrey
UK41 Tyne and Wear
UK42 Warwick
UK43 West Midlands
UK44 West Sussex
UK45 West Yorkshire
UK46 Wiltshire
UK52 Antrim
UK53 Ards
UK54 Armagh
UK55 Ballymena
UK56 Ballymoney
UK57 Banbridge
UK58 Belfast
UK59 Carrickfergus
UK60 Castlereagh
UK61 Coleraine
UK62 Cookstown
UK63 Craigavon
UK64 Down
UK65 Dungannon
UK66 Fermanagh
UK67 Larne
UK68 Limavady
UK69 Lisburn
UK70 Londonderry
UK71 Magherafelt
UK72 Moyle
UK73 Newry and Mourne
UK74 Newtownabbey
UK75 North Down
UK76 Omagh
UK77 Strabane
UK78 Borders
UK79 Central
UK80 Dumfries and Galloway
UK81 Fife
UK82 Grampian
UK83 Highland
UK84 Lothian
UK85 Orkney
UK86 Shetland
UK87 Strathclyde
UK88 Tayside
UK89 Western Isles
UK90 Clwyd
UK91 Dyfed
UK92 Gwent
UK93 Gwynedd
UK94 Mid Glamorgan
UK95 Powys
UK96 South Glamorgan
UK97 West Glamorgan

* US UNITED STATES
* US01 Alabama
* US02 Alaska
* US04 Arizona
* US05 Arkansas
* US06 California
* US08 Colorado
* US09 Connecticut
* US10 Delaware
* US11 District of Columbia
* US12 Florida
* US13 Georgia
* US15 Hawaii
* US16 Idaho
* US17 Illinois
* US18 Indiana
* US19 Iowa
* US20 Kansas

* US21 Kentucky
* US22 Louisiana
* US23 Maine
* US24 Maryland
* US25 Massachusetts
* US26 Michigan
* US27 Minnesota
* US28 Mississippi
* US29 Missouri
* US30 Montana
* US31 Nebraska
* US32 Nevada
* US33 New Hampshire
* US34 New Jersey
* US35 New Mexico
* US36 New York
* US37 North Carolina
* US38 North Dakota
* US39 Ohio
* US40 Oklahoma
* US41 Oregon
* US42 Pennsylvania
* US44 Rhode Island
* US45 South Carolina
* US46 South Dakota
* US47 Tennessee
* US48 Texas
* US49 Utah
* US50 Vermont
* US51 Virginia
* US53 Washington
* US54 West Virginia
* US55 Wisconsin
* US56 Wyoming

UY URUGUAY
UY01 Artigas
UY02 Canelones
UY03 Cerro Largo
UY04 Colonia
UY05 Durazno
UY06 Flores
UY07 Florida
UY08 Lavalleja
UY09 Maldonado
UY10 Montevideo
UY11 Paysandu
UY12 Rio Negro
UY13 Rivera
UY14 Rocha
UY15 Salto
UY16 San Jose
UY17 Soriano
UY18 Tacuarembo
UY19 Treinta y Tres

UZ UZBEKISTAN

NH VANUATU
NH05 Ambrym
NH06 Aoba/Maewo
NH07 Banks/Torres
NH08 Efate
NH09 Epi
NH10 Malakula
NH11 Paama
NH12 Pentecote
NH13 Santo/Malo
NH14 Shepherd
NH15 Tafea

VT VATICAN CITY

VE VENEZUELA
VE01 Amazonas
VE02 Anzoategui
VE03 Apure
VE04 Aragua
VE05 Barinas
VE06 Bolivar
VE07 Carabobo
VE08 Cojedes
VE09 Delta Amacuro
VE24 Dependencias Federales
VE10 Distrito Federal
VE11 Falcon
VE12 Guarico
VE13 Lara
VE14 Merida
VE15 Miranda
VE16 Monagas
VE17 Nueva Esparta
VE18 Portuguesa
VE19 Sucre
VE20 Tachira
VE21 Trujillo
VE22 Yaracuy
VE23 Zulia

VM VIETNAM
VM43 An Giang
VM53 Ba Ria-Vung Tau
VM02 Bac Thai
VM03 Ben Tre
VM54 Binh Dinh
VM55 Binh Thuan
VM56 Can Tho
VM05 Cao Bang
VM44 Dac Lac
VM45 Dong Nai
VM46 Dong Thap
VM57 Gia Lai
VM11 Ha Bac
VM58 Ha Giang
VM51 Ha Noi
VM59 Ha Tay
VM60 Ha Tinh
VM12 Hai Hung
VM13 Hai Phong
VM52 Ho Chi Minh
VM61 Hoa Binh
VM62 Khanh Hoa
VM47 Kien Giang
VM63 Kon Tum
VM22 Lai Chau
VM23 Lam Dong
VM39 Lang Son
VM64 Lao Cai
VM24 Long An
VM48 Minh Hai
VM65 Nam Ha
VM66 Nghe An
VM67 Ninh Binh
VM68 Ninh Thuan
VM69 Phu Yen
VM70 Quang Binh
VM29 Quang Nam-Da Nang
VM71 Quang Ngai
VM30 Quang Ninh
VM72 Quang Tri
VM73 Soc Trang
VM49 Song Be
VM32 Son La
VM33 Tay Ninh
VM35 Thai Binh
VM34 Thanh Hoa
VM74 Thua Thien
VM37 Tien Giang
VM75 Tra Vinh
VM76 Tuyen Quang
VM77 Vinh Long
VM50 Vinh Phu
VM78 Yen Bai

* VQ VIRGIN ISLANDS

WQ WAKE ISLAND

WF WALLIS AND FUTUNA

WE WEST BANK

WI WESTERN SAHARA

WS WESTERN SAMOA
WS01 A`ana
WS02 Aiga-i-le-Tai
WS03 Atua
WS04 Fa`asaleleaga
WS05 Gaga`emauga
WS07 Gagaifomauga
WS08 Palauli
WS09 Satupa`itea
WS10 Tuamasaga
WS06 Va`a-o-Fonoti
WS11 Vaisigano

YM YEMEN
YM01 Abyan
YM02 `Adan
YM07 Al Bayda'
YM08 Al Hudaydah
YM09 Al Jawf
YM03 Al Mahrah
YM10 Al Mahwit
YM11 Dhamar
YM04 Hadramawt
YM12 Hajjah
YM13 Ibb
YM06 Lahij
YM14 Ma'rib
YM05 Shabwah
YM15 Sa`dah
YM16 San`a'
YM17 Ta`izz

CG ZAIRE
CG01 Bandundu
CG08 Bas-Zaire
CG02 Equateur
CG09 Haut-Zaire
CG03 Kasai-Occidental
CG04 Kasai-Oriental
CG06 Kinshasa
CG07 Kivu
CG05 Shaba

G1ZA ZAMBIA
ZA02 Central
ZA08 Copperbelt
ZA03 Eastern
ZA04 Luapula
ZA09 Lusaka
ZA05 Northern
ZA06 North-Western
ZA07 Southern
ZA01 Western

ZI ZIMBABWE
ZI01 Manicaland
ZI03 Mashonaland Central
ZI04 Mashonaland East
ZI05 Mashonaland West
ZI06 Matabeleland North
ZI07 Matabeleland South
ZI02 Midlands
ZI08 Masvingo

TW TAIWAN
TW01 Fu-chien
TW02 Kao-hsiung
TW03 T'ai-pei
TW04 T'ai-wan

Appendix CC. Application Units (AQUIRE only)

Code	Definition
AI%/L	Active ingredient percent per liter
AI g	Active ingredient grams
AI g/ac	Active ingredient grams per acre
AI g/cm	Active ingredient grams per centimeter
AI g/ha	Active ingredient grams per hectare
AI g/m2	Active ingredient grams per square meter
AI kg	Active ingredient kilograms
AI kg/ha	Active ingredient kilograms per hectare
AI lb/ac	Active ingredient pounds per acre
AI lb/ga	Active ingredient pounds per gallon
AI mg	Active ingredient milligram
AI mg/L	Active ingredient milligram per liter
AI oz/ac	Active ingredient ounces per acre
AI ug/L	Active ingredient micrograms per liter
AI ng/cm2	Active ingredient nanograms per square centimeters
L	Liters
NR	Not reported
ac/ft	Acre foot
g	Grams
g/1000g	Grams per 1000 grams
g/L	Grams per liter
g/ac	Grams per acre
g/cm3	Grams per cubic centimeter
g/ha	Grams per hectare
g/km	Grams per kilometer
g/m2	Grams per square meter
g/m3	Grams per cubic meter
g/yr	Grams per year
gal	Gallons
gal/ac	Gallons per acre
gal/ac f	Gallons per acre foot
gal/gal	Gallon per gallon
kg	Kilograms
kg/ac	Kilograms per acre
kg/ha	Kilograms per hectare
kg/m	Kilograms per meter
kg/m3	Kilograms per cubic meter
l/ha	Liter per hectare
l/mi	Liter per minute
l/s	Liter per second
lb	Pound
lb/ac	Pound per acre
lb/cwt s	Pound per hundred weight seed
lb/ft2	Pound per square feet
mg/L	Milligrams per liter
mg/m2	Milligrams per square meter
ml/L	Milliliter per liter
ml/m2	Milliliter per square meter
ml/mi	Milliliter per minute
ng/cm2	Nanogram per square centimeter
no/m2	Number per square meter
oz/ac	Ounces per acre
oz/gal	Ounces per gallon
ppm	Parts per million
ppm/mi	Parts per million per minute
tillers/m2	Tillers per square meter
tons	Tons
tons/ha	Tons per hectare
ug/L	Microgram per liter
ug/L/hr	Micrograms per liter per hour
ug/cm2	Microgram per square centimeter
ug/kg	Microgram per kilogram
ug/ml	Microgram per millimeter
ul/L	Microliters per liter

Code	Definition

Appendix DD. AQUIRE Field Name Codes

Field Name	Remark Abbreviation	Field Name	Remark Abbreviation
Grade	GRADE	Exposure Time	TIME
Purity	PURITY	Exposure Type	TYPE
Formulation	FO	Method Conc	CONC
Characteristics	CHAR	Temperature	TEMP
Radiolabel	RADIO	Hardness	HARD
Carrier or Solvent	CARRIER	Alkalinity	ALK
Solvent Grade	SOLVGRADE	Dissolved Oxygen	DO
Solvent Purity	SOLVPURITY		
Solvent Formulation	SOLVFO	pH	PH
Solvent Characteristics	SOLVCHAR	Salinity	SALIN
		Conductivity	COND
Media	FW,SW	Organic C	ORG C
Location	LAB,FIELD	Habitat Descr	HAB
Organism Char	LIFESTG	Substrate Info	SUBSTR
Control	CONTR	Water Depth	DEPTH
Response Site	SITE	Location	LOC
		Sta/Pro/Country	NONE
Effect	In EE Remark	Latitude	LAT
Trend	TREND	Longitude	LONG
Endpt	In EE Remark	AP Type	AP TY
Measurement	In EE Remark	AP Frequency	AP FREQ
Signif	SIGNIF	AP Rate	AP RATE
Level	LEVEL	Half Life	HALF
Concentration	CONC	AP Season	AP SEAS
BCF	BCF	AP Date	AP DATE

Appendix EE. Field Name Codes

I. Quality Assurance Parameters

Field Name	Coding Sheet Abbreviation	Remarks Abbreviation
Reference Number	REF #, AUTHOR, YEAR	none
Total Tests	TOTAL TESTS	none
Reviewer/Date	REVIEWER, DATE	none
QA Date/Initials	QA DATE, INITIALS	none
TestNumber	TEST ID	none

II. Test Chemical Parameters

Field Name	Coding Sheet Abbreviation	Remarks Abbreviations
Chemical Name, Type	TEST, POSITIVE CONTROL, CARRIER	none, PC CARRIER
Grade	GRADE	GRADE
Purity	PURITY	none
Formulation	FORMULATION	FO
Comments	CHARACTERSTICS	CHAR
Radiolabel	RADIOLAB	RADIO
CAS number	CAS #	none

III. Test Information

Field Name	Coding Sheet Abbreviation	Remarks Abbreviations
Species Number/Latin Name	SPECIES #/LATIN NAME	none
Organism Source	ORG SOURCE	SOURCE
Lifestage/Age	LIFESTG/AGE	LIFESTG/ AGE
Organism Characteristics	ORG CHAR	OCHAR
Test Location	TEST LOCATION	LOC
Exposure Type	EXPO TYPE	TYPE
Control	CONTROL TYPE	CONTR
Number of Doses	DOSE NUM	DNUM
Application Frequency	APPL FREQUENCY	AP FREQ
Exposure Duration	EXPOSURE DURATION	ETIME
Study Duration	STUDY DURATION	STIME
Media Type	MEDIA TYPE	MEDIA
Soil Type	SOIL TYPE	SOIL
Soil Texture	SOIL TEXTURE	TEXTURE
Media pH	MEDIA PH	pH
Media Organic Matter	MEDIA ORGANIC MATTER	OM
Media Moisture	MEDIA MOISTURE	MOIST
Media CEC	MEDIA CEC	CEC
Soil Concentration Measured/ Concentration measured on Dry or Wet Basis	SOIL CONC MEASURED DRY-WET WEIGHT	none
Remarks	REMARKS	none
Experimental Design	---	EDES
Other Effects	none	OEF

IV. Exposure Information

Field Name	Coding Sheet Abbreviation	Remarks Abbreviation
Dose Number	DOSE NO	none
Dose ID	DOSE ID	none
Sample Number	N	none
Gender	SEX	SEX
Exposure Dose and Unit	DOSE/UNIT	DOSE/ DUNIT
Ion	ION	ION
Chemical Analysis Method	METHOD	ANALYSIS
Remark Number	RN	none
Remarks	REMARKS	none

V. Results Information

Field Name	Coding Sheet Abbreviation	Remarks Abbreviation
Dose Number/ID	DOSE NO/ID	none
Sample Number and Unit	N/UNIT	SAMPN/ NUNIT
Observation Time	O	OTIME
Effect	EFFECT	EFCT
Effect Measurement	MEASMENT	MSMT
Endpoint/Assigned	ENDPT/ASG	ENDPT
Result Set	R	none
Statistical Significance	SIG/NSIG	none
Level	LEVEL	none
Paper/Reviewer Assigned Data	P R	none
Response Site	RESP SITE	RSITE
Observed Response Value/ Unit	OBSERV RESPONSE VALUE/UNIT	RVALUE RUNIT
Dry or Wet Weight	DW %	DW
Percent Lipid	%LIPID	LD
Remark Number	RN	none
Remarks	REMARKS	none

Appendix FF. Organic Matter Type and Units

Organic Matter Types

Code	Definition
ASH	Ash Free Dry Mass
C	Carbon
C:N	Carbon to Nitrogen Ratio
CPON	Carbon Particulate Organic Matter
Cox	Oxidized Carbon
DOC	Dissolved Organic Carbon
HUM	Humus
LOI	Loss On Ignition
N	Nitrogen
NR	Not Reported
OC	Organic Carbon
OM	Organic Matter
POC	Particulate Organic Carbon
POM	Particulate Organic Matter
TOC	Total Organic Carbon
peat	Peat

Organic Matter Units

Code	Definition
%	percent
NR	not reported
cmol/kg	centimoles per kilogram
g	grams
g/100g	grams per 100 grams
g/kg	grams per kilogram
mg/g soil	milligrams per gram soil
mg/100g soil	milligrams per 100 grams of soil
mg/kg soil	milligrams per kilogram soil
umol/g LIT	micromoles per gram litter

Appendix GG. Cation Exchange Capacity Units

Cation Exchange Capacity (CEC) Units

Dose	**Definition**
NR	not reported
cmol/kg	centimoles per kilogram soil
cmol+/kg	centimoles + ions per kilogram soil
cmol P+/kg	centimoles P+ per kilogram soil
me/100g	milliequivalents per 100 grams s
meq	milliequivalents
meq A/100 g	milliequivalents NH4 per 100 g
meq mg/g	milliequivalent milligrams per g
meq/100g	milliequivalents per 100 grams s
meq/kg	milliequivalents per kilogram
mmol/100g	millimoles per 100 grams soil
mmol/kg	millimoles per kilogram soil
mmol K+/kg	millimoles K+ per kilogram soil
mval/100g	millivalue per 100 grams (mval=ppm*(ion charge)/(atomic weight)